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REPORT



ON

YELLOW FEVER.

BY

JAMES GILLKREST, M.D.

INSPECTOR-GENERAL OF ARMY HOSPITALS AND CORRESPONDING MEMBER OF THE
PARIS NATIONAL ACADEMY OF MEDICINE.

*Forming Appendix No. I. to the Second Report of the General Board
of Health on Quarantine.*

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We are indebted to Dr. Gillkrest, Inspector-General of Army Hospitals, for a valuable monograph on one of the most carefully observed outbreaks of Yellow Fever on record, namely, the Yellow Fever epidemic at Gibraltar, in 1828. An abstract of this important paper recently presented to the Academy of Medicine of France, has called forth the high approbation of that body, and we have given the original document at length, (Appendix No. J.,) as being not only an account of this particular epidemic by an eye-witness, in which the main events are ably analysed and succinctly described, but as recording the general experience of a long professional life devoted to the study and history of this particular disease.—(*General Board of Health p. 7, of the Second Report to her Majesty on Quarantine.*)

At the recommendation of the celebrated French Physician Dr. Thomas of New Orleans, who had witnessed several severe Yellow Fever Epidemics, before he wrote upon that disease, I witnessed two severe Epidemics in the West Indies, and one at Gibraltar before I took upon me so serious a responsibility.

J. G.

APPENDIX No. I.

REPORT ON YELLOW FEVER.

BY DR. GILLKREST.

INTRODUCTION.

London, 28th Oct., 1850.

MY LORDS AND GENTLEMEN,

THE wisdom of instituting a spirit of close investigation in all matters connected with those diseases which, in an epidemic form, sweep away human beings in masses, has been singularly exemplified throughout the country during the late prevalence of cholera; for though great the afflictions lately experienced, the wisdom, energy, and humanity so promptly put forth were certainly the means of always mitigating, and, in numberless instances, of limiting this scourge, which otherwise would have produced results calamitous beyond calculation. Let us hope that the power which worked so well in the cause of truth on that occasion, may not rest in the belief that all has yet been done which the interests of humanity require.

Contagion in Yellow Fever still remains to England a question of great national importance, on account of her colonies,—her commerce,—her fleets,—and her armies.

Volumes have been written in various languages in support of the fallacy which annually consigns numbers of our fellow-beings to inevitable death.

It will be seen from what I take the liberty of submitting in the following Report, how much humanity needs protection from opinions so erroneous and destructive.

Great have been the efforts of many eminent men to disabuse the public mind on a question of such vital interest. But pre-eminent I may assert were the labours of the late Dr. Chervin, of Paris, on this subject;—respecting whom I beg to give the following extract from the Report of a Commission appointed by the Academy of Sciences in Paris, in 1827, to adjudge the Montyon prize designed for labours in medical science. The Commissioners were MM. Portal, Boyer, Chaptal, Dumeril, Dulong, Gay-Lussac, de Blainville, Frederic Cuvier, and Magendie.

The Report made by the above gentlemen, after stating some unusual steps taken by Dr. Chervin, to ascertain the contagious or non-contagious nature of the Yellow Fever at Gua-

daloupe, to which place he had proceeded from Paris, for the sole purpose of making investigations,—proceeds thus:—“This is nothing!—It was, on the contrary, then, that Dr. Chervin conceived the wisest and vastest plan, that ever a medical man formed for the interests of humanity.

“It was no longer sufficient for him, that he had satisfied himself that the Yellow Fever was not contagious in Guadeloupe; it became necessary to ascertain whether it did not possess that character in other localities and in other latitudes and climates. It was, above all things, necessary to convince the Governments of Europe, so that commerce might be freed from unnecessary precautions, felt to be burthensome, and that nations might be saved great expense in sanitary establishments. In attaining his object, Dr. Chervin was only impelled by his ardent philanthropy—no other means, but the sacrifice of his patrimony—no support, but his own inclination and physical powers—let it be declared, to the honour of humanity, that by such means alone, enterprises of this kind could be accomplished; and in fact, what a powerful Government could scarcely hope to obtain at great expense, Dr. Chervin proposed to himself to obtain.

“Dr. Chervin performed this gigantic undertaking, to which the history of medicine furnishes no parallel, in a fortunate manner, but with unheard of efforts, and perseverance above all praise.”

Speaking of his having collected the evidence of hundreds of medical men in all parts of the world, where the Yellow Fever is known to prevail, the Report continues—

“He visited, in eight years, all the Colonies belonging to France, England, Spain, Holland, Denmark, Sweden;—he visited all parts of North America, where the Yellow Fever had shown itself, from New Orleans to Portland, in the state of Maine;—so that from Cayenne to this last place, he traversed over and made investigations in 37 degrees of latitude.”

“It [the Commission] therefore proposes to adjudge him a prize of 10,000 francs; undoubtedly a poor reward for the many sacrifices which he must have made; but when a person has, like Dr. Chervin, merited so much from science and humanity, and shown such disinterestedness, *on voit la Couronne et non pas sa valeur.*”

Strongly as I believe that many have been unreasonably biassed in their opinions as to the contagious nature of Yellow Fever, yet I most readily admit that others, among whom are some of my personal friends, have been misled by the *semblance* of contagion, so frequently occurring, and by their insufficient investigation of all the circumstances connected with the subject.

Indeed, I think from what will be found in the following

pages, that this disease would seem to require a very special study as to its nature and the phenomena it presents.

Those who have laboured with me in my investigations can, I trust, speak as to the good faith with which those labours have been conducted.

In conclusion, allow me to entertain the hope that what I have here submitted, under the sanction of your honourable Board, as a bequest to my country, will tend, in some degree, to excite the attention of Her Majesty's Government, and of the Legislature, to a more efficient investigation of the subject;—and that the same humane as well as energetic steps which, in so timely a manner, crushed the head of the hydra “Contagion” in Cholera,—will no longer suffer a system to have sway which continually places at the mercy of persons prejudiced, or deeply interested, or little acquainted with the subject, the mighty question of the lives of large portions of our naval and military forces in various parts of the world.

I have the honour to be,

My Lords and Gentlemen,

Your obedient Servant,

J. GILLKREST, M.D.

Inspector-General of Army Hospitals, and Corresponding
Member of the Paris National Academy of Medicine.

To the General Board of Health.

REPORT.

I HAVE taken upon me the very onerous task of writing on Yellow Fever, which, in its malignant form, has swept off numberless human beings in the West Indies, North and South America, various parts of the coast of Africa and adjacent islands, as well as Gibraltar, and several places in Spain; once in Lisbon (1723), and once in Leghorn (1804.)

I cannot better convey an idea of the difficulty of my undertaking than, by quoting from the French Academician MOREAU DE JONNÉS,* 1820:—“Several powerful causes have contributed to render Yellow Fever a disease of which the origin is uncertain, the cause unknown, the character equivocal, and the consequences so terrible, that we are equally at a loss to discover the means of preventing it, of checking it, or of treating it.”

With certain modifications regarding the checking of the disease, and perhaps also as to its treatment, unless, indeed, in the form the most malignant of all—I fully agree in the pro-

* A man of science, formerly a military man, who, since his service at Martinique in 1802, as aide-de-camp, has figured a good deal in the discussions relative to the contagion of yellow fever, as well as spasmodic cholera, though not of the medical profession.

priety of what is here said, being conformable to my great experience, aided by laborious researches in the course of a long life.—I cannot admit that it has not often been prevented or checked by change of station.

NAMES GIVEN TO THIS DISEASE.

The Academician already mentioned, has enumerated no fewer than 36 names for the disease in different languages, of which it may be sufficient to mention the following: “Yellow fever,” “Black Vomit fever,” “Bulam fever,” “Fièvre jaune,” “Vomito negro,” &c. Some have adhered to Bilious Remittent, others have called it Pestilential, from its ravages, and a late writer denominates it the “Hæmagastrie Pestilence,” from a single symptom which, however, is far from constant.

The anomalies which this disease has been observed to present,—the absence, under the observation of one medical man, of some of the symptoms which, during another epidemic, had been well marked,—the fact of practitioners having observed that certain symptoms, prominent during one period of an epidemic, have at another period, been totally absent; the fact, too, of patients in the same ward of an hospital, being found to labour under symptoms so variously grouped as to lead an inexperienced practitioner to believe that he had before him three or four diseases bearing little affinity to each other;—all these circumstances have thrown difficulties in the way of this disease having had a place assigned to it in nosological arrangements, free from objections.

By some, Yellow Fever has been classed with *continued* fevers, the symptoms not having appeared to them to correspond with those laid down by nosologists as characterizing remittents; while, according to the statements of others, of whose accuracy of observation there cannot be a doubt, the disease has assumed the most unequivocal remittent form: indeed, there is very respectable evidence in proof of its having, on some rare occasions, assumed even the character of an *intermittent*.

This is not the place to define what constitutes, rigorously, remittent fever; it is plain that in most countries the opinions of medical men are at variance upon the subject. The remarks of close observers go to prove how frequently remittents may be *masked* so as to mislead as to their true character.

The great Italian medical authority Tomassini says on the subject of classing diseases:—

“Tant il est vrai que l’entreprise de classer les maladies a souvent entraîné dans des contradictions les auteurs les plus éclairés.”*

* Tomassini’s Researches on Yellow Fever, p. 24.

Let us listen to what the experience of Dr. Elliotson, of St. Thomas's Hospital, had taught him on the subject of remittents:—

“Remittent fever will frequently occur insidiously, and, unless you are quite up to it, you may as easily pass it over as some forms of epilepsy. I have had many cases of remittent fever, which, in addition to the symptoms of continued fever, were merely characterized by excessive sweating.”—*London Medical Gazette*, January 3, 1831.

Those therefore cannot, with justice, be accused of much inaccuracy who, confining themselves probably to their own field of observation, have looked upon Yellow Fever as belonging to the class of continued fevers; but it is important to show whether those are right who maintain that the disease bears no affinity whatever to remittents, and that it *never* assumes any other than the continued form.

On this point it will be right to quote authorities of respectability. Dr. Rush, in his account of the epidemics at Philadelphia in 1793 and 1794, distinctly notices remissions in several pages:—“The remissions were more evident in this than in the common bilious fever. They generally occurred in the afternoon.”* “It,” speaking of delirium, “alternated in some cases with the exacerbations and remissions of the fever.”† Speaking of the second form of this fever, he says that it was attended “with obvious remissions.”‡ At p. 45 of his account of the epidemic of 1794, he says that the disease “appeared most frequently in the form of a remittent. The exacerbations occurred most commonly in the evening.” In another passage, often quoted, “Never has the unity of our autumnal fever been more clearly demonstrated than in our present epidemic. Its principal grades, viz., the intermitting, the mild remittent, the inflammatory bilious fever, and the malignant Yellow Fever, have all run into each other in many instances. A tertian has ended in death with black vomiting, and a fever, with the face and eyes suffused with blood, has ended in a quotidian which has yielded to a few doses of bark.”§

Dr. John Hunter in his *Observations on the Diseases of the Army in Jamaica, 1796*, p. 62, says, “The fevers that prevail in Jamaica are either of the intermitting or remittent kind. The remittent fevers are both the most frequent and the most fatal.” At p. 63 he describes the ordinary symptoms; and at p. 318 he says, “When the remittent fever is of the worst kind the yellowness of the skin occurs most frequently; but

* Account of Epidemic of 1793, p. 79.

† Op. cit., p. 62.

‡ Ibid., p. 82.

§ Letter to Dr. Miller, *New York Medical Repository*, vol. vi., p. 249.

the Yellow Fever is neither a different disease, nor do all the sick, even in fatal cases, turn yellow; yet, at such times, it has been customary to call the prevailing fever by the name of the *Yellow Fever*."

In some observations on Yellow Fever by Staff Surgeon Nodes Dickenson (Med. Chir. Jour. Vol. ii., 1820, p. 190—1,) we have the following:—

"Feelings of heat and slight chilliness alternate for a time."

"The truth seems to be that the morbid actions constituting Yellow Fever are marked by almost inconceivable rapidity, and the duration of the cold stage is proportionably evanescent; but generally not the less real; though, from occurring in the night, it is often unnoticed by the patient, and at so early a period, it is seldom observed by the practitioner.

"In the situation of most of the West India sea ports, the continued form is most frequently observed. But we have often remarked that the same exposure and irregularities exercised in places notoriously abounding with marshy effluvia (as the towns of Point à Pitre, Guadaloupe, Fort Royal, in Martinique) have been succeeded by the recurrent character of attack."

Mr. Campbell, of the army medical department, in an official report dated Montserrat, 1825, gives as his reasons for thinking that the remittents, &c. of the West Indies are grades of the same disease—that, during a yellow-fever epidemic at Barbadoes in 1821, he observed, "the most marked difference in the type and symptoms of cases of patients from the same barrack or hut, where not the slightest doubt could be entertained of the disease being produced in both instances by one and the same morbid cause, yet so modified by physical causes, connected with the patient, as to appear quite different diseases, and certainly requiring different modes of treatment."

The frequent occurrence of Yellow Fever in Spain, entitles the statements of the medical men of that country to great consideration on the point in question. The late Dr. Arejula, who was so familiar with Yellow Fever as it appeared in Spain within the last half century (having been appointed by the Spanish Government to visit and report upon various epidemics prevalent in the different provinces, 1803-4), repeatedly informed the writer of this Report that the disease frequently assumed the most marked remittent form. In his description of the Malaga epidemic of 1803,* he tells us that the bark was found useful during the *remissions*. At p. 71 he is clear on the subject of remissions; and at p. 139 informs us that the disease "without doubt deserves the name of remittent fever."† He even says, when describing a black-vomit

* See his work on Yellow Fever, p. 25.

† "Merece sin duda el nombre de calentura remittente."

epidemic, "the termination of our remittent in *intermittent*, which also occurred in some instances at the close of the epidemic, was an indication that the disease was about to be extinguished."

The recorded opinions of Dr. Velasquez of Seville, are fully in corroboration of the statements of Arejula. The following physicians were contemporaries of the latter gentleman, and had witnessed some of the Yellow-Fever epidemics of Spain; Dr. Balmis, who called the disease, as it presented itself during the Cadiz epidemic of 1800, "a putrid malignant remittent;" Dr. Flores Moreno, who describes in his work "accessions and remissions;" Dr. Alfonso de Maria of Cadiz, says, "when the yellow fever degenerated into intermittent." In the third volume of Hurtado's *Decadas*, published at Madrid, may be found a memoir relative to one of the Seville epidemics, with the signatures attached of Drs. Gabriel Rodriguez, Scrafin, Adame, Velasquez, and Chicon, to the effect that "sometimes, though rarely, the fever presented itself following the type of an intermittent."* In the *Trozos ineditos* of Dr. Salva, professor of medicine at Barcelona, evidence is to be found of the disease having been observed to assume the remittent form.

It may be stated that the records of the Gibraltar Yellow-Fever epidemics furnish the following names in support of the fact that remissions not unfrequently take place in this disease: Drs. M'Mullin and Browne, Messrs. Sproule, Wild, Martindale, Amiel, Dow, Donnett, Humphries, Lee, and Hugh Fraser.

For myself, the ordinary characters of remission did not so appear in 1828 as to warrant my speaking decidedly on the subject. If we keep in mind the quotation I have given from Dr. Elliotson as to the characters of remissions being often insidious, and easily escaping notice; and if, also, it be considered that my regiment (43rd) had been more severely and at an earlier period attacked than any other in the garrison, the pressing wants of the sick might well account for such light and evanescent symptoms passing unobserved.

But however lawful it might have been in the midst of clashing opinions to doubt the existence of Yellow Fever in a remittent shape, late authorities in some of the French West India islands, and in the United States, have placed the matter so entirely in the affirmative, that there is no longer room for cavilling on the subject. The evidence, indeed, is so overwhelming, that, extremely reluctant as I am to heap evidence on what is already proved, I cannot forbear referring to the following, the importance of which will be duly appreciated by the profession.

* "Alguna vez, aunque rara, se presenta la calentura siguiendo el tipo de intermitente."

I would especially call attention to two memoirs by Dr. Rufz, Paris, 1842, on the Yellow Fever epidemic of St. Pierre, Martinique, prevalent from 1838 to 1841.

I must confine myself to the statement, page 33, of his having "seen no cases *favourable to contagion*;"—also, page 57, that from September 1839 to the end of December 1840, the epidemic at St. Pierre, in the greater number of cases, assumed an intermittent or remittent form, "*bien prononcée*." The sulphate of quinine employed in such cases, appears to have been efficacious.

He states that the surgeon of the frigate "*Herminie*," treated, in September 1838, at Vera Cruz, above 100 cases of intermittent "*vomito*." I would refer the profession at large to these memoirs, in which will be found superabundant proofs of the relationship between the Yellow Fever and the *periodical forms of fever*.

The Reporters, Drs. Londe and Chervin, refer also to the memoir of Dr. Dutroulau on the subject of a similar epidemic at Fort Royal, Martinique, with well-marked remissions.

M. Bertulus, in his Memoir on the Importation of Yellow Fever into Europe, says (p. 66): "These symptoms" [*i. e. general*] "continued from twenty-four to thirty-six hours, sometimes even longer, and were accompanied by an extraordinary alteration of the countenance; then true paroxysms of pernicious intermittent fever speedily appeared, and their stages, though at times sufficiently distinct, in the great majority of the cases ran into each other; these paroxysms succeeded one another with such rapidity, that it was really impossible to detect the moment of intermission, which was looked for with impatience, in order to administer the sulphate of quinine."

A work published by Dr. Bartlett, Professor of Medicine, of Transylvania College (*Phil^a*, 1847), on the history, diagnosis, and treatment of the fevers of the United States, is full of information on the subject, and must henceforth be appealed to by all who desire information on the Yellow Fever. We are there told (what indeed was always plain enough) that the best description of *periodical fevers* is not to be learnt in England, where, in fact, the "*pernicious forms*" so fully detailed by Torti, Ramazzini, Baglivi, Lancisi, and other old Italian writers, are not to be found in the experience of practitioners.

Amidst the great variety of information on the subject of American fevers, Dr. Bartlett, refers to the following, from a paper by Dr. Lewis, of Mobile, who attended during the epidemic of 1843 cases in the southern part of the city, where the remittent fever prevailed extensively both among the natives and acclimated. Dr. Lewis describes a form of disease which he calls *remittent* and *intermittent* Yellow Fever, and tells us that

16 cases of remittent* or intermittent fever assumed the rank and grade of Yellow Fever, and that these cases were all amongst the unacclimated. He estimates the number of cases during that epidemic (1843), at 100, 50 of which proved fatal.

Among the variety of forms shown by Dr. Bartlett to be assumed by the periodical fevers of America, we find (p. 354) the "algid variety," which was observed by myself and others in the epidemic at Gibraltar in 1828, and many years ago touched upon by me in writings published in England† and France, in the following terms:—"The patient, although in possession of his faculties, lies for the most part on his back, in a state of collapse, his limbs pulseless, clammy, and stricken with a degree of coldness considerably below that which is found to take place in a corpse under similar atmospheric temperature; while probably he complains of agonizing internal heat, and casts off the bedclothes incessantly." Still stronger, however, is the following quotation from a manuscript drawn up by me in the hospital surgery, on the termination of the epidemic; drawn up to the knowledge of every regimental medical officer present, all being invited to point out any errors in my statements respecting their particular corps: "Singultus," I state, "in a severe degree may now be looked for; the pulse can no longer be felt at the wrists, the extremities become almost as cold as marble in winter, indeed, many degrees colder than any substance which one can lay his hand upon at the time, or than the same parts are when life becomes extinct. This coldness, with a remarkable clammy feel at the same time, conveys a peculiar shock to those who apply the hand to the limbs."

Among other algid cases witnessed in the garrison, were two of a very remarkable nature, which appeared in the hospital of the 42nd regiment, then, on account of the illness of assistant surgeon McGregor, under medical charge of Mr. George Brown,‡ assistant surgeon 43rd regiment, who requested me to visit these patients in company with himself.

This gentleman has lately confirmed my strong expressions on these cases. The very mention of them, even at this distance of time, seems to occasion a most painful impression on his feelings. In one of them he speaks of "the shock conveyed by the *intense coldness* of the patient's body,—of the pulselessness,—the broken voice, as in algid cholera,—the perfect soundness of mind and readiness to reply rationally to all questions,—whilst, to his utter astonishment, the body was pale as the whitest marble;"—so that, on the whole, an appearance was presented quite "beyond anything" which he had ever before or since wit-

* See also *Thomas de la Fièvre Jaune*, p. 35.

† *Cyc. Prac. Med.* (1833), Art. *Yellow Fever*; where the general symptoms and morbid appearances of the disease are detailed. It is therefore unnecessary that I should repeat them here.

‡ Now surgeon of the Grenadier Guards.

nessed. Mr. Brown thinks the patient lived two days in this state.

In his second case the symptoms were very similar, with the exception of the extreme paleness, instead of which there existed a tendency to a certain livid or leaden colour,* especially of and about the ears, this being indeed the most common appearance presented in our algid cases during that epidemic.†

Mr. Brown assures me that, after every consideration he feels convinced that the term "algid" is here perfectly applicable; and that the change to this state was *sudden*, as noticed by Maillot, who also observes that these algid symptoms are exclusively peculiar to fevers of a periodic type.

Having last year been in contact with Dr. Jameson, staff surgeon, who has had much experience in West Indian fever, that gentleman writes me to the following effect:—"During my residence in Jamaica, from 1834 to 1845, I have seen *several* cases of the algid variety of Yellow Fever." He also states that he witnessed recovery in one "case of algid variety of Yellow Fever, successfully treated by quinine at Kingston, Jamaica, about 1843-4—serjeant McHugh, then of 60th, afterwards 48th, now, I believe, an officer in a West India regiment: quantity given during the whole attack exceeded 700 grains."

I am of opinion that if Yellow Fever epidemics can be always closely investigated, algid cases are likely to be found much oftener than may be supposed; for I find, on consulting Arejula on the epidemics of Spain, that he frequently speaks of this cold variety of the disease.—See p. 168, where he mentions *the marble coldness* ("*el frio marmóreo*"), also pp. 160, 173, 259, and several others.

Dr. Lafuente in reference to the *cold* variety of Yellow Fever in Spain, gives symptoms of a sufficiently unmistakable character in his account of what occurred at Medina-Sidonia in 1801. At page 28 *b* and 28 *c*, we find the word "*lipirico*" and "*lipiricos*" employed; which, if rendered "*Lipyria*," will bring us to the precise word employed by the most ancient authors on fever, in which privation of heat was a leading feature; afterwards employed by Torti, and recognized by Cullen.

HISTORY OF THE DISEASE.

Previous to entering into details, it may be stated that a disease is here understood in which, along with other symptoms, yellowness of the skin, partial or general (though by no means constant), and, towards the fatal termination, vomiting of a black or dark-brown fluid, still less *constant*, occur. As it will be necessary to refer frequently to the yellow-fever epidemics of Spain, and as, notwithstanding all that has been written

* This appearance mentioned as occurring at Cadiz, 1800. Arejula, p. 172.

† Cases of this kind had been noticed in previous years by Dr. Bobadilla.

upon the subject, the identity of yellow fever, in that country with the black-vomit fever of the West Indies, North and South America, has been denied, so late as 1828, by a French physician (Dr. Roehoux), who went to investigate the Barcelona epidemic of 1821, it may be proper here to premise that "*the perfect identity*" of the disease has been admitted* to have been established beyond all doubt at Gibraltar in 1828.

Among writers on Yellow Fever, the names of respectable men will be found who maintain that this disease has made its appearance on the continent of America, in the West India islands, and certain parts of Europe, in modern times only. In opposition to this it has been shown, that though in former ages this disease may not have been observed to prevail epidemically in that part of the neighbourhood of the Mediterranean where Hippocrates practised, it is not the less true that this close observer had been familiar with a fever in which the two symptoms considered by most writers as characterizing the disease (yellowness of skin and black vomit) were sometimes present.

We are reminded by Humboldt that the period of the first description of a disease furnishes no evidence of its having only then for the first time appeared; and the *ensemble* of the symptoms of Yellow Fever being only to be found fully and accurately detailed by writers of the last century, will scarcely be considered as furnishing conclusive evidence of the non-existence of similar epidemics at periods more remote. Owing to the state of medicine in former ages, and to the fact of practitioners having been so few that the sick were not unfrequently wholly destitute of medical aid, the exact nature of many epidemics which reigned from time to time, under the names of "pest," "pestilential disease," "black death," "yellow death," &c., has not been handed down to us. We have a remarkable proof of this in epidemics which prevailed in this country formerly, under the name of "sweating sickness;" the accounts of that disease being quite unsatisfactory. To admit that all ancient epidemics within certain parallels of latitude, and termed pests or plagues, were of the character of true plague, while all the epidemic fevers of modern times, which have so frequently afflicted the inhabitants of the same latitudes, *have not* possessed the characters of plague, but those of Yellow Fever; would be admitting what is but little conformable to the usual course of nature. Père Dutertre, one of the oldest writers on the Yellow Fever of the West Indies, employs the term "*peste*," when detailing symptoms not corresponding with those of plague, but such as peculiarly belong to Yellow Fever.

* Vide *Bulletin des Sciences Medicales*, vol. xviii. p. 90 (1829). This identity seems to have been placed beyond all doubt by my having shown that we had, occasionally, at Gibraltar, the same kind of hæmorrhagic depôts or tumours which Dr. Kerandren and others had noticed in the Yellow Fever of the West Indies.

To give even a partial view of the arguments employed by various British writers in support of and against the statement of the Yellow Fever having been imported into the West India islands for the first time in 1793, would occupy more space than could with any propriety be devoted to the point. Its importation into the island of Grenada in that year rested chiefly on the authority of the late Dr. Chisholm, who believed that he had traced the origin of the fever to the ship "Hankey," which had lately arrived from the island of Bulam, situated on the west coast of Africa. This statement of the importation into the West Indies of a "*nova pestis*," as it was then called, has since given rise to much controversy; but those who consult Bancroft's *Essay on Yellow Fever*, and a small treatise on the disease published in 1818 by Dr. James Veitch, an experienced naval surgeon, will find details of a very interesting nature, which go to prove that on this occasion Dr. Chisholm had certainly proceeded on very erroneous data.

Respecting the alleged importation of the disease into Grenada by the "Hankey," I must refer to the observations of Dr. Cragie, of Edinburgh. This distinguished physician states to the following effect in his "*Practice of Physic*," vol. i.

"Dr. Chisholm maintained that the disease thus generated and imported was a new pestilential disease, unheard of before in the West Indies, entirely different from Yellow Fever and malignant pestilential fever; he specially applied the name of Bulam to it. The whole of this, however, originated in mis-statements of facts, and complete ignorance of the previous history of the West India fever.

"It may therefore be regarded as certain, that the disease which was thus, by a degree of ignorance and misapprehension almost unrivalled in the history of medicine, then and since denominated *Bulam* fever, was only the usual form of fever common, in certain seasons, to the whole of the West India islands, and which has prevailed there, chiefly among the newly-arrived or not long-resident Europeans, ever since commercial intercourse has been fully established between Europe and these islands." And, truly, it was unpardonable for Dr. Chisholm and his followers to apply the term "*Nova pestis*" to a disease long before distinctly recorded by a celebrated nosologist, SAUVAGE, and other writers, who should have been consulted. Without referring to old Spanish and French authors, Drs. Chisholm and Pym might have found, from at least the following writers, that there was nothing *new* in the matter:—Town, 1736; Lining, 1758; Hillary, 1766; Maekittrick, 1766; Lind, 1772; Hunter, 1788;* Moseley, 1790.

* Sir W. Pym states, p. 51, second edition of his work, that the health of Jamaica previous to the arrival of the "Hankey" was good, and (among other authorities, all of whom are referred to in regard to periods *subsequent* to that about to be

Père Dutertre would seem to be the first by whom details of the symptoms and progress of this disease in the West India islands have been transmitted to us.* From the remarkable muscular pains often felt by a patient labouring under an attack, as if from heavy blows, it was then called *coup de barre*; and Père Dutertre, considering it a new disease when he first saw it (1635), termed it "the pest unknown previously in these islands." He notices the yellowness of the skin particularly; and though he says that the disease was imported into the islands by "some ships," and in another page by a particular ship, "Le Bœuf," from Rochelle, he says that those "were chiefly attacked who were employed in clearing the land in different islands, and were exposed to the poisonous vapours and exhalations." †

Père Labat, on landing at Martinique in 1649, found the disease raging in that island, and the monks belonging to the convent of his order suffered severely. He tells us that he himself had the disease twice; that people were frequently attacked so suddenly and severely that they fell down in the streets; that hæmorrhages from the several natural orifices, and even from the skin occurred; and that the disease usually proved fatal within five, or six days. He states that the

mentioned) quotes (p. 55) Dr. Hunter, respecting the salubrity of Fort Augusta and Stony Hill in 1781-2, in proof of his assertion.

On consulting "Observations on the Diseases of the Army in Jamaica," &c., by John Hunter, M.D., London, 1796, pp. 26 and 27, we find it is indeed true that that writer speaks favourably of the two above-mentioned localities; but they are expressly pointed out as exceptions, and by way of contrast with the sickly, nay deadly state, of other parts of the island during the period referred to,—which will abundantly appear from the following quotations:—

At p. 11, Dr. Hunter says, "Four regiments were sent from England in 1780 to Jamaica; they arrived there the 1st of August, and before the end of January ensuing, not quite six months, one-half of them nearly were dead, and a considerable part of the remainder were unfit for service."

At p. 57, he says, "An average of the number of sick during three years and a half, in which are included the convalescents, gives one-third of the army unfit for service at the time of the greatest sickness, and one-eighth at the time of the least sickness. The average of deaths annually upon the whole is nearly one in four, and of discharged men about one in eight, which, together, makes the loss three-eighths of the whole. In less than four years there died in the island of Jamaica 3,500 men; those that were discharged amounted to one-half of that number, which make in all 5,250 men lost to the service in that short period of time from the climate and other causes of mortality, without a man dying by the hands of the enemy."

Speaking of the symptoms of the disease, p. 64, he says, "The vomiting is sometimes constant and violent, especially in the worst kind of the disease, and the blood being frequently in a dissolved state is forced into the stomach and thrown up, forming, what has been called by the Spaniards, the *black vomit*."

Is it then credible that with this book before him the British Superintendent of Quarantine should write the following, at p. 59 of his second edition?

"These quotations, from the highest authority, prove that for several years before 1793 there was no instance of that species of disease prevailing epidemically in the West Indies, which is characterized by black vomiting," &c.

* Histoire Générale des Antilles.

† Ibid., p. 81, ed. in 4to.

disease was called *maladie de Siam*, from the belief of its having been imported into Martinique by a ship of war, the "Oriflamme," "which, coming from Siam with the remains of the hospital establishments which had been at Mergay and Bancoek, touched at Brazil, where she became infected with the disease which reigned there for seven or eight years."* This account of the introduction of the disease into Martinique relates to the year 1688, being some years before his arrival in that island; and his statement would seem to rest altogether on the *belief then prevalent* as to the circumstances.

At page 337 of Dr. Bancroft's *Essay on Yellow Fever*, we have evidence of the existence of the disease at St. Domingo in the year 1731; and, in subsequent pages, of its having prevailed there epidemically in 1733, 1734, 1739, 1740, 1741, and 1743.

The insalubrity of that island was manifested soon after its discovery; for it appears that the sickness among his men gave Columbus great anxiety. It could scarcely have been expected that anything very precise as to the nature of the disease from which they suffered should have been transmitted to us. A late historian, Washington Irving, merely informs us that "when they fell ill their case soon became hopeless." Reasonable inferences may however be drawn from passages in old Spanish historians. Oviedo, in his *Historia General de las Indias*,† speaks of a great mortality among Columbus's people in 1494, which he attributes to the humidity of the island. He says that those who returned to Spain were of a yellow or "saffron colour;" that people finding the country so unhealthy objected to go there;‡ and that in consequence 300 convicts were at one time sent to St. Domingo. He adds, that if the king offered him the Indies he would not go there. M. Morcau de Jonnés cites§ one or two other passages from Oviedo on the same subject, which I have not been able to verify by a reference to the edition within my reach. Further details are given by Herrera (Madrid 1601), as to the violence, suddenness of attack, &c., of the disease which carried off so many of Columbus's men in St. Domingo; and he refers to a letter|| written in 1498 by Columbus to the king of Spain, attributing the sickness of his men on their first arrival to peculiarities in the air and water.

Respecting the accounts of the existence of the Yellow Fever at remote periods on the American Continent, it would appear that Dr. Fournier Pascey, of Paris, who for several years

* Nouveau Voyage aux Iles de l'Amerique, tome 1.

† Ed. in folio 1547, book ii., cap. 13.

‡ Book iii., cap. 4.

§ Monographie de la Fièvre jaune.

Book iii., c. 15.

devoted much attention to all questions connected with the disease, considers it identical with that referred to by Ferreira da Rosa, in his account of Pernambuco, printed at Lisbon in 1649. In the beginning of the last century the disease, from its appearance in various parts of Spanish America, under the name of *vomito prieto*, attracted much attention; and it is particularly referred to by the historian Ulloa, who resided for some years in that country. The word *prieto*, it may be remarked, is the Portuguese or nearly obsolete Spanish term for *black*: in Spain the word *negro* is now universally substituted. A small pamphlet of 62 pages, by a Dr. Gastelbondo, written at Carthagena (S.A.) in 1753, and printed at Madrid in 1755, was probably the first work *ex professo* on the black-vomit fever, as it appeared in South America; he gives his experience of the disease during 40 years; says, in the title-page, that he is about to write on a disease of frequent occurrence in that part of the world; mentions change of climate and mode of living among the causes of the disease in new comers; and says, that the natives of Carthagena, Vera-Cruz, &c., were not subject to attacks of the true black-vomit fever, though liable to the "*chape-tonada*," a disease resembling it in some respects.

In North America the prevalence of Yellow Fever epidemically, previous to 1793, seems unquestionable; and authorities may be cited for its appearance at Boston in 1693; at Philadelphia in 1695, 1741, 1751, and 1762; at Charlestown in 1695, 1732, 1739, 1745, and 1768; at New York in 1702; and in Virginia in 1744.

We come now to the history of Yellow Fever in that part of Europe where its frequent appearance, within the last half century, has so justly excited the attention of the profession, and of those governments who rank the investigation of such subjects among their first duties. Some writers (among whom was Sir Gilbert Blane) have stated that the first appearance of Yellow Fever in Spain was at Cadiz in 1764; next in 1800 in the same city; and at Malaga, for the first time, in 1803.

It seems strange that, with respect to Cadiz, those writers should have overlooked the remarkable epidemics at that place in the years 1730, 1731, and 1736, recorded by different authorities, the two first being very particularly noticed by Villalba, in his curious work "*Epidemiologia Española*." It seems equally extraordinary that those writers should have overlooked the black-vomit epidemic which prevailed at Malaga in 1741, described by Dr. Rexano, and since frequently referred to. With respect to epidemics which prevailed in Spain, previous to those of Cadiz and Malaga, many consider the evidence imperfect as to the disease having been, in any of them, similar in character to that under consideration; for

in those days all epidemics causing great mortality were called "pests," or "pestilential diseases." In epidemics called pests, recorded as having prevailed at Malaga in 1678 and 1679, two physicians, Drs. Cheea and Molina, sent officially to inquire into the nature of the disease, pronounced it *not* plague. The writings of Spanish medical men being but little known to the profession at large, quotations from some of them on the present subject may be the more admissible.

Dr. Hurtado, of Madrid,* adduces proofs in support of the prevalence of the disease epidemically in former ages in Spain. He quotes Dr. Garcia Suelto as being of his opinion that such epidemics appeared at periods much more remote than 1730, and cites him as stating that "the most distinguished men of the profession move as it were in a career new to them, but long known to Spaniards their countrymen. If the medical history of Spain had been more familiar to them they would have availed themselves of the excellent descriptions and important illustrations to be found in the work of Antonio Fonseca, on *the peste* and contagious diseases, and on the epidemic fever of 1621." Hurtado also quotes Sebastian Nuñez, Pablo Correa, Manuel de la Cerda, and others.

The frequent application of the word *atrabilis* in ancient times to any dark fluid ejected from the stomach, tended, no doubt, to create obscurity as to the character of diseases; and in Spain, medical men, for want of a better name, sometimes employed the words *fiebre dudosa* (fever of a doubtful nature) when speaking of the epidemic disease. Eusebio is quoted by Villalba respecting an epidemic which prevailed in Carthage in the autumn of 1648; which was attributed to local causes. Eusebio states that in his time the endemic fevers of Carthage and Alicante sometimes became *pestilential* in the autumnal months. It appears from Villalba's work, that in 1648 other towns besides Carthage, as Cadiz, Seville, Alicante, and Valencia, were afflicted by the epidemic; and it is remarkable that some of the writers of that period state that the disease *was carried to the West Indies* from one of those towns, from whence it was again brought back to Spain, and commenced fresh ravages at Barcelona, Gerona, Tortosa, and "almost in every town in Catalonia." From this we may at least infer that the identity of the Spanish and West India diseases was *then* acknowledged.

According to Villalba, three formidable epidemics took place in remote times at Barcelona within a period of eighteen years; one in 1497, another in 1501, and the third in 1515; and as they prevailed in the summer or autumnal months, their iden-

* This writer, like many other medicos, was not at liberty, previous to the declaration of the constitution in Spain in 1821, to publish his opinions openly on these matters.

tity with the modern epidemics of Spain has been inferred. Villalba records an epidemic at Barcelona in 1589, which lasted from June to December—the deaths up to the 20th October having been 10,935. On this occasion the resident physicians of Barcelona maintained that the disease *was not plague*.

A Dr. Porcel wrote, in 1565, on an epidemic which prevailed at Saragossa in the preceding year, and which ended in the month of December. He states that the symptoms were sometimes very insidious; that the patient seemed to be going on well,—pulse natural, skin temperate, &c.—till the fourth day, when the countenance became altered, and faintings took place, followed commonly by death: he adds that sleeplessness, extreme anxiety, (the patient rolling about the bed,) peculiar pain in the region of the stomach, and vomiting of a fluid (which he calls *colera*) of various shades of colour, took place. He notes, moreover, that the countenance became livid and yellow, (*livido y amarillo*.)

The work of a Dr. Andosilla is also cited, in which he speaks of a disease under the name of *peste*, which prevailed in some Spanish towns in the *autumn* of 1600. He visited those towns officially, and describes the disease as not having the characters of plague, but others “new to him.” In 1649, a Dr. Morillo, who had been employed at Marbella and other towns in Andalusia during an epidemic, went also to Gibraltar, to witness an epidemic, which, according to an old Spanish history of Gibraltar, by Ayola, proved so fatal, that the people, losing all confidence in human means, instituted processions to the neighbouring hermitage of St. Roque, which were kept up annually in the month of August, till the surrender of the garrison to the British in 1704.

There is a record of that garrison having, in the autumn of 1727, lost 500 men by fever, but the character of the disease is not described. By a document in my possession from the late W. Hill, deputy inspector-general of hospitals, dated London, June 13, 1832, it appears that in 1798 the 48th regiment, arrived in Gibraltar from England, and that soon after, a severe fever appeared among the men, which carried off about 100 of them. This fever, which he says was confined to the recruits, of which there were great numbers, “Dr. Harness, then physician to Lord St. Vincent’s fleet, and afterwards one of the commissioners to the Sick and Hurt Board, declared to be *precisely the same he had seen in the West Indies*.”* In Trotter’s *Medicina Nautica* it is stated that 257 deaths from fever took place in the above garrison in 1800, among the military; the average annual mortality among the military there having been only 38.

* Addenda (A.), p. 206.

With respect to Gibraltar, therefore, these facts may be considered sufficient to establish that, previous to the Yellow Fever epidemic of 1804, the disease had made its appearance there to a formidable extent: indeed, it is well known that, along that part of the Spanish coast, no other form of epidemic proves so fatal. It may be added, that Dr. Monro says in his work on the diseases of armies, that in 1799 a fever made its appearance at Gibraltar, which he considered similar to that of the West Indies.

It is probable that the existence of the *causes* of Yellow Fever have not been confined to the localities in Spain recorded as having been visited by the disease; those causes may equally have been present, at numberless other places, though not recognised, in consequence of such places being uninhabited. We cannot always be sure of the existence of ague localities until the presence of inhabitants establish this.

Respecting Yellow-Fever epidemics in other parts of Europe, that described by Palloni, Tomassini, and others, as having taken place at Leghorn in 1804, is the most remarkable. We have an account, by a Dr. Kennedy, of an epidemic at Lisbon in 1736; and, from the symptoms, there seems little reason to doubt of the identity of the disease with Yellow Fever. Professor Salva, of Barcelona, considers a fever with yellow skin which prevailed very extensively in a district of the Canton of Berne, during a period of very extraordinary heat, in the year 1762, and of which there is some account in a volume of the proceedings of the French Academy of Sciences for 1763, as similar to the Yellow Fever of Spain. Some recognise this disease also in the fever with yellow skin, hæmorrhages, &c., described by Frank as occurring in Hungary.

The existence of this fever occasionally at points higher up the Mediterranean than those already mentioned, rests upon respectable authority. The late Dr. Alexander, surgeon to H. M. forces, who had ample experience of Yellow Fever in the West Indies, declared to me on a particular occasion, that he witnessed many deaths from the disease in Sicily, soon after the return of Sir John Stewart's army from Lower Calabria in 1806; and that while at this latter place, some cases occurred among our troops. The existence of sporadic or scattered cases of Yellow Fever with black vomit even in England and France, has been insisted upon by some persons; those referred to in the *Dictionnaire de Médecine*, vol. xxi. p. 17, as having occurred at Paris in the hot summer of 1822, seem most worthy of attention.

In turning to East India Records, the mention at p. 46 of the Bengal reports on cholera, of a fever with yellow skin which occurred in that presidency in 1816, can hardly be held as conclusive. But we find, in a memoir by Mr. Walsh, of the

medical department of our army during the Burmese war, that that gentleman, while in charge of cases of the fever prevalent in the army, was surprised by the sudden appearance of some with black vomit and yellow skin. It is recorded, as has been noticed by Dr. Johnson, in his work on tropical climates, that those symptoms appeared in a fever which prevailed in the hospitals at the Isle of Edam, appropriated for the sick of the force employed for the reduction of Java in 1811.

At Sierra Leone this disease is recorded as having occurred, to a remarkable extent, in the year 1823.

SPORADICS.

Connected with the history of Yellow Fever, it is always considered a point of very great importance to ascertain whether it be a fact that, in those parts of the world where the disease is observed to prevail epidemically, single, or scattered, ('*sporadic*') cases have occurred in ordinary years. To the mass of evidence on this point, from the West Indies and America, not one word need be added in confirmation of the fact. In Europe a few only hold out against this statement; in England, probably not more than two or three. But of late years so much attention has been paid to the subject that unless people be prepared to prove that symptoms, grouped together in a certain order, in conjunction with similar *post-mortem* appearances, do not always constitute the same disease, it is quite idle longer to dispute the point. Among many other French physicians who have paid great attention to the subject of Yellow Fever, and who have recognised the existence of sporadic cases in Spain, are Drs. Pariset and Robert, leaders of the contagionists. In Spain we find Dr. Arejula, a leading contagionist, and Dr. Flores Moreno, also a contagionist, admitting it freely in their works; besides Drs. Piguillem, Salva, and several other men of note. I am in possession of such a body of evidence, drawn from registers and other authentic sources at Gibraltar, as would of itself place the matter beyond all doubt. In the month of April, 1829, the records of the civil hospital in that garrison were examined at my suggestion, and a certificate drawn up and signed by nine gentlemen, to the following effect:—

Gibraltar, 13th April, 1829.

“We, the undersigned, have this day heard the foregoing thirty-nine cases, which have been extracted and condensed from the records of the Civil Hospital, carefully read over, and which have been compared with the original text.

We are unanimously of opinion, that, with the exception of case No. 23 (Samuel Bird), they are identical with the cases of

the epidemic fever which existed in this garrison during the latter part of the year 1828.

(Signed) JOHN GILLICE, (*a*)
Assistant Surgeon 12th Regiment.
A. BROWNE, M.D. (*e*)
Assistant Surgeon 23rd Regiment W. F.
EDWARD DOW, (*b*)
Acting Deputy Inspector of Hospitals.
HUGH FRASER, (*a*)
Surgeon of Civil Hospital.
GEORGE BROWN, (*a*)
Assistant Surgeon 43rd Regiment.
J. MILLAR, (*d*)
Assistant Staff Surgeon.
J. GILLKREST, M.D., (*b*)
Surgeon 43rd Regiment.
R. AMIEL, (*e*)
Surgeon 12th Regiment.
CHERVIN, D.M. (*f*)”

(*a*) The gentlemen marked thus had been here during the whole of the epidemic.

(*b*) These gentlemen had witnessed epidemics in the West Indies, as well as at Gibraltar.

(*c*) This gentleman had witnessed three epidemics in Gibraltar,

(*d*) This gentleman had seen the Yellow Fever, or Bulam of Dr. Pym, in the West Indies.

(*e*) This gentleman had seen the Yellow Fever at Gibraltar during a part of the epidemic season of 1828.

(*f*) Dr. Chervin had made the Yellow Fever his particular study for fifteen years previous to 1829, in various parts of the world, and had seen more Yellow Fever than any person then living.

There is also evidence in a report drawn up for the Transport Board, by Dr. Gray, formerly physician to the Mediterranean fleet, and for some years physician to the Naval Hospital, Gibraltar. After stating that “remittents” (with dark stools, hæmorrhage from the mouth, nose, &c.) are more or less endemic at Gibraltar, he says:—

“I have also observed, in some instances, matter ejected from the stomach, of a dark colour, resembling the grounds of coffee. During the long period of my serving, I cannot recall to my recollection a single instance of fevers being communicated from one person to another, either amongst the medical attendants or nurses.”

And in a document (published in the second edition of Sir W. Burnett’s work) by Staff-Surgeon Glasse, who had served ten years in Gibraltar, and witnessed the epidemics of 1804 and 1813, as well as the cases of Yellow Fever which occurred in 1810. &c. ; he says:—

“During the autumn I have been in the habit of seeing solitary cases of fever, attended with black vomiting and other severe symptoms, both in the town and “*South*” (see plan *T*),

without the disease being communicated to others confined in the same building."

In a letter to Sir James M'Grigor, Dr. Thomas Smith, Surgeon, 23rd Regiment, reports on a sporadic case of Yellow Fever occurring in Gibraltar in March 1830; fearing that so marked a case might not otherwise obtain the attention of the Director-General of Hospitals in England.

After detailing other symptoms, Dr. Smith expressly refers to the occurrence of the yellow skin and "black vomit:" also states that hæmorrhages, suppression of urine, hiccough, disturbance of the cerebral functions with jaetitation took place. The man died on the fourth day after admission.

It is quite certain that for the last 20 years strongly marked sporadic cases of this disease have been of extremely rare occurrence at Gibraltar, while at the same time the existence of sporadic cases of true Yellow Fever within that time even in London and Paris rests upon excellent authority.

CONTAGION.

Considering the misconceptions which so often arise regarding the words *Infection* and *Contagion*; I think it proper to explain the sense in which they are here used.

In conformity, I believe, with the sense in which it is employed by medical writers in France, as well as in other continental nations, I mean by contagion, the power of communicating disease, from the person of an individual labouring under it, to that of another,—whether by actual contact,—(the *immediate* contagion of the French); through the medium of linen, bedding, or any substance whatever;* through the medium of the air, in a room in which an individual labours under the disease; the capability of being propagated by means of excretions or exhalations from the bodies of those affected; or, finally, by means of exhalations from the bodies of those who have died of it.

The transmission of a disease in any of the above ways being clearly demonstrated; its capability of subsequent extension, or general dissemination, may be reasonably contended for.

By *infection* I would be understood to mean, (as I also think the French do) a principle which produces the disease, depending altogether upon *local* causes, and having no relation to emanations from persons labouring under the disease, or from the bodies of those who have died of it.

Thus I would call a malaria spot, or filthy locality, a *focus of infection*.

The discussions regarding the contagion or non-contagion of Yellow Fever have been of ancient origin, and are still con-

* This and following are the *mediate* of the French and other authorities.

tinued. Indeed invitations have been held forth within the last few years, by writers who feel deeply interested in this important disease, that those who have had much experience on the subject, "should not allow it to remain in its present state."

Gibraltar being in every way a station of high importance to the British Government, and my services there in responsible situations having extended over many years, I trust that my statements will be found given with all the care and all the fidelity which the importance of such a subject demands. The interest I have so long felt in everything connected with the health of that garrison, naturally induces me to give the Yellow Fever epidemics, which have broken out there, the first place in my consideration.

The calamity of an epidemic at Gibraltar, affords greater facilities for the establishment of truth, as to its origin and progress, than perhaps any other place whatever.

Its surface is very limited, it is under strict military government and police, affording all the means, *when so wished by the authorities*, for the most scrutinising investigation; and the population (civil and military, about 22,000,) not sufficient to embarrass the ready attainment of facts, yet large enough, to give all the materials necessary for drawing solid conclusions.

Under these circumstances ample opportunities are afforded for the detection of erroneous statements.

I have before referred to what I consider as the first recorded epidemic at Gibraltar in 1649, which I believe to have been Yellow Fever, from the mortality it occasioned, and from its originating in the month of August. Since its occupation by the British in 1704, the following visitations of Yellow Fever have occurred in Gibraltar.

1804.

The severest on record (commencing in August), when, in a population of about 15,000, the following number of deaths took place:—

Military	869
Civilians	4864
	<hr/>
	5733

1810.

(Scattered or sporadic cases.)

Military	6
Civilians	17
	<hr/>
	23

1813.

Military	391
Civilians	508
	899

(Between the 8th of September and the 3rd of December.)

1814.

Military	114
Civilians	132
	246

From August to November.

1828.

Military	507
Civilians	1170
	1677

From August, to the 14th of January 1829, when the last death took place from Yellow Fever.

In nearly all the foregoing, it will be observed that the disease commenced in or about the month of August, as is found to be the case in the great majority of Yellow Fever epidemics throughout Spain.*

It would be impossible to enter fully into the numberless details connected with the origin and progress of the Yellow Fever at Gibraltar in 1804, 1810, 1813, and 1814.

But in the works of Sir William Burnett, Director General Navy Medical Department,—the late Dr. Baneroft,† Deputy Inspector General of Hospitals,—Mr. Amiel,‡ formerly on the Staff, and attached for some years to the civil poor of some of the districts of Gibraltar, afterwards surgeon of the 12th Regiment in the garrison, and, lastly, many years surgeon to the Civil Hospital, who was in fact the chronicler of all the diseases of the Rock for nearly 40 years,—and Dr. O'Halloran,§ formerly of the 64th Regiment,—most ample accounts are furnished, (especially by Dr. Baneroft, in his Sequel to his Essay on Yellow Fever,) showing the very wrongful efforts of

* “The epidemic which reigned in Andalusia in 1804, commenced in the month of August in ten, and in September in eight of the twenty-three towns in which it prevailed that year.”—From *Barcelona Manifesto of 15 Physicians* (Maclean's *Evils of Quarantine Laws*, p. 131.)

† “Essay on Yellow Fever,” and “Sequel to Essay on Yellow Fever.”

‡ Memoir on Yellow Fever.—*Edinburgh Med. and Sur. Journal*, April, 1831.

§ On the Yellow Fever of the South and East Coasts of Spain.

persons with exaggerated views of the utility of quarantine, to prove the disease of a highly contagious nature.

It will therefore be indispensable that those who desire to obtain a correct view of the occurrences which took place in those years regarding Yellow Fever, should make themselves familiar with the writings of the above mentioned authors, many of whose statements I had an opportunity of verifying after my arrival in 1822. I have been assured by Mr. Amiel, that the impression given* by the present superintendent of Quarantine in this country, as to the disease having been cut short in 1810 by his recommendation of segregating the cases, is utterly fallacious; for, as has also been specially certified to me by the Signor Bobadilla, a respectable practitioner resident during many years in Gibraltar, the progress of the disease was stopped "*as it is always found to be,*" by the setting in of a cold wind from the north.†

It must be obvious that placing a point like this on its true footing is of the highest importance. Notwithstanding the body of evidence on record against contagion in all the Gibraltar Yellow Fever epidemics up to the year 1814, and though from Bancroft's works it appears that among the medical men of that garrison the majority of opinions had been greatly against it, it was nevertheless natural that unbiassed persons should become influenced by the statements published by two officers of the Quarantine Department,‡ who, having been on the spot, had ample opportunities of arriving at the truth. The circumstance here alluded to is the assertion that, during the epidemic of 1813, the people employed in the dock-yard having been strictly separated from the rest of the garrison, remained free from the disease. Here, then, was, *if true*, evidence in support of the utility of quarantine, and of the propriety of separating the healthy from the sick. But what was the astonishment of the profession on finding that MIS-STATEMENTS HAD HERE TAKEN THE PLACE OF FACTS, as shown by Dr. O'Halloran. During my residence at Gibraltar, I had ample means, by referring to the official authorities at the dock-yard, of confirming the assertion of Dr. O'Halloran that several cases of the fever prevalent in 1813 occurred there, as well as some deaths; indeed the names of twenty-three (of which seven proved fatal) are given in another place,|| so that no impressions favourable to the accuracy or candour of the Quarantine officers can be entertained; and in the justly severe remarks of Dr. O'Halloran

* See Pym on the "Bulam" Fever.

† See Addenda (B.), p. 209.

‡ Sir William Pym,—and Inspector W. W. Fraser: the latter in a published letter to Lord Chatham, the then Governor. Mr. Fraser was afterwards appointed Quarantine Officer in Liverpool.

|| See Addenda (C.), p. 210.

to which no reply has been made, future observers of circumstances connected with the public interest, as well as the medical officers of the navy and army to whom the Superintendent of Quarantine has dedicated his work, have received a salutary warning against a too hasty credulity.

GIBRALTAR EPIDEMIC OF 1828.

I shall now refer to the facts bearing on contagion, as they occurred during the epidemic in 1828, when it fell to my lot to observe its rise, progress, and termination. At the commencement of the epidemic there were very few medical men in the garrison who could be called anti-contagionists. Conceiving that our medical chief, the late Dr. Hennen, was disposed to make up his mind, perhaps too soon, against importation and contagion, Dr. Thomas Smith, late surgeon of the 23rd Regiment, and myself, wrote to request that he would give further attention to the reports regarding the importation of the disease by a Swedish ship from the Havannah, called the *Dygden*;* but an impartial consideration of all the facts which passed in evidence before us subsequently, left no doubts as to the cause, being of a strictly local nature. At the strangely constituted Board appointed to inquire into the origin of the disease, much passed, over which a veil has too long been suffered to hang.

On the cessation of the epidemic, a despatch was forwarded to the Governor of Gibraltar from the late Sir George Murray, then Secretary of State for the Colonies, directing a commission of inquiry for the purpose of establishing the origin of the disease, and to decide on the question of its alleged importation, at which he himself, the Governor, was to preside. †

Not finding himself equal to the task, however, the Governor, with the sanction of the Secretary of State, appointed (to the astonishment of all who had read the works of Dr. Bancroft and Sir William Burnett) Dr. Pym, British Superintendent of Quarantine, to take his place. Thus in fact, creating that gentleman a judge presiding in his own cause, and converting, as my readers will perceive, an investigation on a most important subject, *into a mere mockery*.

The Board was composed of the following gentlemen:—

President.

Dr., now Sir WILLIAM PYM.

Members.

T. JONES HOWELL, Esq., Judge Advocate, and Judge of the Vice-Admiralty Court.

* See Addenda (D.), p. 212.

† “As the object of the proposed investigation is merely to ascertain a fact, and may therefore be more properly accomplished by the careful examination of impar-

Colonel CHAPMAN, Royal Engineers, Colonial or Civil Secretary, &c.

Lieut.-Colonel FALLA, Town Major, as such, head of the Police, and therefore responsible for the sanitary condition of the town, state of the population, admission of strangers, &c.

WILLIAM SWEETLAND, Esq., for many years Captain of the Port, and, as Pratique Master, head of the Quarantine Department.

Dr. BROADFOOT, principal medical officer, and for several years of the Quarantine Department at Corfu and Gibraltar.

Dr. BARRY, Staff Surgeon, Secretary to three Commissions connected with Yellow Fever; named for this occasion Vice Inspector of Health.

The following is a summary of the opinions given by the President and members of the Board:—

The PRESIDENT.—“From the very strong evidence before the Board of the first person attacked by the late epidemic fever, having been connected with the shipping, I am of opinion that the disease was of foreign origin; and that neither local nor atmospheric causes have had any share in its production; Gibraltar being one of the most healthy spots in Europe, no soldiers of the garrison having died of fever during the months of August, September, and October of 1827, and only 19 soldiers having died from fever in the course of the five years preceding the year 1828, during the sickly months of August, September, and October.”*

Judge HOWELL.—“Upon a careful review of all the proceedings before this Board, I am of opinion that the evidence brought forward has totally failed to prove that the late epidemic disease was introduced from any foreign source, either by the Swedish ship *Dygden*, or by any other means; and I am further of opinion that the late epidemic had its origin in Gibraltar.”

Colonel CHAPMAN.—“Judging from the evidence produced before the Board, the manner in which it has been given, together with the description of persons who have been brought forward as witnesses, I am decidedly of opinion that the late epidemic disease was of local origin. As to the importation of

tial evidence, than by the application of scientific research, I recommend that the inquiry be entrusted to a Board to be presided by yourself.”—*Extract of a Letter from Sir George Murray to Sir George Don, 31st October, 1828.*

* What rational inductions we have here!! The following is another specimen of contagionist reasoning:—“During the time that the disease had been going on on board the transports in the bay, the garrison continued in perfect health until the 20th of October [1810], when, in consequence (as I must suppose) of a breach of Quarantine regulations, which, however, could not be detected, a Minorcan family in the South District, belonging to the dockyard, was attacked with the disease.”—P. 49, 1st Edit.; 29, 2nd Edit.—*Observations upon Bulam Fever, by Sir William Pym.*

the late epidemic, I am of opinion that the attempts to prove the introduction of the disease, after months of previous inquiry, by those who wished to prove it, have wholly failed."

Mr. SWEETLAND.—"After the most attentive consideration of the evidences which has been brought forward, I have discovered nothing which has carried conviction to my mind as to the cause or origin of the late epidemic fever. On the one hand, it has not been shown, that any of the causes stated in support of the doctrine of its being of domestic origin, existed in a higher degree in the year 1828, than in many preceding years, when the garrison was free from that disease; and on the other hand, no vessels have arrived during the last summer having the Yellow Fever on board, nor has that disease discovered itself among any of the shipping in the port. In the absence, therefore, of any proof on either side, I must decline hazarding an opinion on a subject which has hitherto baffled the researches of the most learned physicians of all countries."

Lieut.-Colonel FALLA.—"I am of opinion that the late epidemic was not of local origin; but, from the strong presumptive evidence before the Board, that it was introduced."

Dr. BROADFOOT.—Opinion, at great length, may be considered literally both for importation;—and local origin.

Dr. BARRY.—"I am of opinion that the late epidemic was not of local origin, and was imported."

With regard to the statements of some of the members of the Board, concerning the condition of the town, I was much struck, on my first arrival, with the general cleanliness of the streets; but my observations, after a settled residence, convinced me that, in numberless localities, its sanitary condition was exceedingly imperfect, notwithstanding what appeared to be the great care taken by the authorities to prevent accumulations unfavourable to health.

During the summer season, the sewers necessarily retain a quantity of filth, till carried off by the heavy periodical rains, on the recurrence of which their cleansing entirely depends at all seasons of the year. No summer passes without offensive smells emanating from those sewers, both within the walls of the town, and about the barracks and houses in the district called "South,"* especially during the eddying gusts of an easterly,—or a direct westerly wind.

Cesspools are numerous, the town being but partially supplied with water-closets, and these having often an insufficient quantity of water, whilst many of the drains are constructed without a proper fall. It has been established, by the investigations which took place in the autumn of 1828, that, in the districts within the walls in which the fever first prevailed

* See Plan, figure 8.

(Nos. 24 and 25*), there was a greater accumulation of filth than ordinary in some of the branches of the sewers, and in the soil-pits. I am of opinion that when certain conditional causes, or more properly conditional states, exist, which favour, by their fortuitous assemblage, the emanation from the earth of the peculiar poison productive of Yellow Fever, a more accelerated development of that poison is likely to take place near such places; and, in this view, foul sewers may fairly be considered as accessories.† To deny the influence of localities (as the neighbourhood of drains, gullies, &c.) as co-operating, in the development of the disease, or even in giving it a higher degree of malignancy, would be excluding facts which, in the minds of impartial people, must be quite conclusive.

Objections may, beyond all doubt, be made against the manner in which a great part of the town is constructed; many places inhabited by the poorer classes being excavated or scarped, to make room for the buildings, which, range after range, ascend for a considerable way up. Many of the houses have, therefore, from their being thus built on the side of the rock, necessarily most inadequate ventilation.

A common feature of the dwellings is that of small "*patios*," or square confined courts, entered by narrow alleys, in which the houses consist of several floors, each occupied by many families.

Gibraltar is therefore to be considered as greatly overcrowded, which may perhaps be conceived from a reference to the *view* attached to this report, showing the small space occupied by the town, near the northern extremity of the rock.

It was not until I had become principal medical officer,‡ in 1833, when I considered it my duty, as general superintendent of the health of the population, to visit, all the lanes, alleys, and "*patios*," that I could have formed any idea of the densely crowded and badly ventilated houses of these localities, and of the difficulty of conceiving how such places should in general prove healthy, amongst a mixed population of about 15,000, exclusive of military, within the walls.

For here we have, in the inadequate supply of water,—the existence of cesspools and ill-constructed drains,—and the over-crowding,—precisely the same assemblage of predisposing or localizing causes which are found to exist in the fever nests of London and other large towns, and which are so prejudicial during the prevalence of epidemic diseases.

In reference to the first appearance of Yellow Fever in

* Plan (A.)

† See Dr. Hennen's Letter to Sir G. Don, Addenda (E.), p. 212.

‡ Soon after my appointment it was ordered by the Colonial Office, without any communication from me, that the principal medical officer should also act in the capacity of Medical Member of the Quarantine Board.

w. Feyer.



Mass House.

High.

1828, it is perfectly established, that the late Dr. Hennen, so early in the season as the end of July, visited a woman living in the district in which the disease first became prevalent,* who, according to that gentleman's statement to Mr. Woods, then assistant surgeon, 94th regiment, laboured under the purest form of true Yellow Fever: this woman died.

It may be readily conceived, that in a disease where the symptoms are sometimes very slight, it was not easy to ascertain who were actually the first attacked, but 29 cases were generally admitted as having occurred up to the 1st September, in the southern and hottest parts of the town.†

On the appearance of the first cases of the fever, vague reports were freely circulated, that the disease was imported by the Swedish ship "Dygden."

The first proof, against its having been so imported, was contained in a document which I had seen from Mr. Sweetland, the Captain of the Port, from which it was clear that no person on board this ship could have communicated the fever to any one on shore, on the simple principle, that we cannot transmit to others that which we have not ourselves.‡

Immediately on the decline of the epidemic, I prepared a lengthened statement concerning Yellow Fever, in which I entered into every detail connected with the first appearance of the disease at that time in Gibraltar, as well as its progress.

This manuscript I have laid before different persons in high authority, and it was my intention to embody in this report much, if not all of the evidence I had collected, with a view to show the unfounded nature of the statements as to the importation and contagion of the disease in the garrison. But circumstances have enabled me to refer the reader to a clear exposition of all the proceedings on that occasion, conveyed in a manner which will render them more conclusive, and in every way more satisfactory.

I have furnished the several opinions of the members of the Board before alluded to; after due consideration of which by Sir George Murray, that acute observer saw fit to require from Mr. Howell, the only member of the legal profession on the Board, his reasons for not being in favour of importation or contagion. That gentleman gave a most elaborate reply, a copy of which will be found (p. 245) Appendix No. II.

Conclusions similar to those expressed in that document, had been placed on record by me in my details of the progress of the epidemic;—and it always appeared most extraordinary, and unjustifiable, that on this Board of inquiry which was intended by the Secretary of State to be so beneficial to the

* District 24. Plan, Letter A.

† 24 and 25 Districts on Plan.

‡ See Addenda (F.), p. 214.

interests of humanity, the Superintendent of Quarantine as president, should have assumed the right in several instances of selecting the witnesses, which obviously prejudiced the question, and by which much of the truth was intercepted.

Several medical officers of the garrison who had much experience respecting the progress of the epidemic, were either not examined at all, or only in a very imperfect manner. I was among the latter, being surgeon to the 43rd Regiment, and present during the whole epidemic. After a very limited examination, I officially informed the President, by letter, that I had much to state; but like others, I was not called afterwards.

From what I felt due to the service of which I had been a member for so many years, as well as the cause of truth, I was induced to protest against such proceedings, which protest will, I presume, be found with the documents connected with the inquiry forwarded from Gibraltar to the Colonial Office.

In addition to Mr. Howell's observations upon the evidence of the witness Catalina Fenic, I think it well to state, that this woman having been cited on the 14th November, 1829, before a public Notary at Gibraltar, deposed as to the falsehood of the report that her children had visited the ship "Dydden."*

I may mention that on my arrival in the West Indies in 1801, the progress of Yellow Fever, to a frightful extent, in Martinique and Dominique, among the newly arrived regiments *only*, † did not fail to convince me that all those under whom I was acting, were right in not considering it a contagious disease; the idea was never harboured, nor ever discussed, so plain and obvious were the facts. ‡

With regard to the Gibraltar epidemic of 1828, I am able to state, that in the 43rd regiment, the admissions of Yellow Fever cases commenced on the 12th September, and though, between that day and the 29th September, 43 cases were treated, no hospital attendant was taken ill. The first day an hospital servant was attacked was on the 30th September, his employment that of cook, and his duties unconnected with the wards or the sick; he slept in a kitchen. The waterman fell ill whilst following his employment, that of bringing water from a distance, and his duties never took him into the wards. It was not till this period, that the southern district, in which there are about 173 houses, § and where the hospital, containing the sick of six regiments, was situated, || became affected by the noxious emanations which prevailed. What took place

* See Addenda (H.), p. 223.

† See Appendix No. IV, p. 381.

‡ "To my great astonishment," says M. Dariste, who had been in the West Indies a great many years, "I found, on my return to my country, that the question as to the contagious property of the Yellow Fever was warmly agitated."

§ Plan, Figs. 8, 8, 8.

|| Plan, Letter (D.)

respecting the Orderlies of the 43rd, was also observed in the other regiments; and with all the medical officers, who had had no previous means of judging, this was a striking circumstance calculated to inspire confidence. Those of our permanent orderlies who suffered, were, for a month, in close contact, by day and night, with the patients, before being attacked. I was informed by Mr. Martin, surgeon 73rd, that, after his hospital was moved to the barrack at Windmill Hill,* *he had no hospital servant taken ill.*

The same took place in the 94th, under medical charge of assistant-surgeon Bulteel, the hospital of which regiment had also been removed to Windmill Hill.

But a circumstance which occurred in the 43rd is calculated to set at rest the question of transmission by contact, as well as by inhaling the atmosphere of a ward in which Yellow Fever patients are placed:—no experiment could possibly be devised more calculated, to put these matters to the test.

Not having civil servants, from the breaking out of the epidemic till the 13th of October, (a period of exactly one month,) we had from one to three men sent us, daily, from the barracks or camp,† at the northern extremity of the rock. They were relieved every 24 hours, with one or two exceptions. The numbers which had been sent, during the month, amounted to 69. Here then we have an experiment on a scale that cannot be rejected by the most fastidious.

I give (Addenda T., p. 240) the names of those men;‡ and in order to prevent doubt respecting so important a document, I procured the signature of the Adjutant of the Regiment, which will be found affixed to it. The date of each man's tour of duty at the hospital is added.

By an examination of that return, it appears,—

1st. That two-thirds of those men were not attacked.

2nd. That while individuals in camp who had never approached the sick, but had more or less communication with the town, (mounting guard, &c.) were taken ill, in the proportion of 1 in $3\frac{1}{4}$, it happened that those Orderlies afterwards suffered *in a considerably less* proportion.

3rdly. That one-third of those attacked had, subsequent to their being on hospital employ, mounted guard, or taken other duties, in localities where other men had been frequently taken ill.

4th. That, keeping in view the proofs of the latent period in Yellow Fever, being confined to a few days, this return affords

* Plan, Letter (F.)

† Plan. Letters (M.) and (P.)

‡ I handed in this list, with the various particulars, to the Commission appointed to examine into the Origin, &c., of the Yellow Fever; and I presume it was forwarded to the Colonial Office, with their proceedings.

the clearest evidence that the attacks, in none of the cases, can be attributed to the men having been employed on hospital duty. It will be seen that some were attacked many days beyond the estimated latent period, and some not for several weeks; all being, in the interval, exposed to the influence of local causes.

It is needless to refer to what the duties were of the above 69 men, constantly in the wards;—supporting the sick while at the night chair;—washing them;—assisting to clean their mouths when affected by hæmorrhage;—making their beds;—shifting their linen;—acting as night guards;—and in short, occupied in every office about the sick.*

Independently of these, others had been employed in taking foul bedding to the barrack stores, without anything taking place calculated to lead to the belief of transmission by "*fomites*." Concerning those persons employed as washerwomen by the civilians, I am able to assert, after every inquiry, that the results were similar to those which occurred amongst the individuals whose names are given in the return of washerwomen for the regimental hospitals (Addenda U., p. 243); and that the attacks of those women could in no case be reasonably traced as an effect of washing the linen of people labouring under Yellow Fever.

Among the medical officers attached to the regimental hospitals in the southern district similar facts to those regarding the orderlies, &c., were observed; none having been taken ill, till an advanced period of the epidemic, when families in private houses in the neighbourhood had been long affected. This was most remarkable in an establishment formed towards the close of the epidemic on ground near the orrillon ditch, † North Front; where none,—among susceptible ‡ orderlies, and medical officers, peculiarly susceptible from their having not long previously arrived from England,—were attacked with the fever.

I shall next refer to the non-transmission of the Yellow

* Our experience in respect to hospital attendants was confirmative of what is recorded on many occasions; especially at Barcelona, in 1821, (as stated in the Report on the Documents of Dr. Chervin, read at the Academy of Medicine of Paris,) where, in one instance of 150 persons appointed to attend on certain houses occupied by sick, the proportion taken ill did not exceed that of the general mass of inhabitants attacked. Of 32 persons employed at the hospital called Nazareth, near Barcelona, in the same year, not one was attacked during the 37 days that hospital was established,—but several suffered some time *after their return to the city*, when the establishment was broken up. Another similar instance occurred in the Queen's Hospital, near Barcelona, in the same year. See also Appendix No. III., p. 284.

† Plan, Letter (G.)

‡ This word is used by me throughout, in its common application, in reference to Yellow Fever; that is, that the individuals in question have not had a former attack.

Fever to patients under treatment in hospital for other diseases.

Previous to the "Naval Hospital" having been appropriated, *exclusively*, to cases of the epidemic fever, all diseases belonging to six regiments were for some weeks treated in that building; and during the residence of non-febrile cases in hospital (with merely the general arrangement of placing them in different wards) the same results took place;—none were seized with the fever till it had previously spread among the inhabitants of the district in which the hospital is situated. This, I believe, is in accord with what happened at Gibraltar in former epidemics, and with what is so often recorded as occurring in the West Indies and other places.

At the commencement of the epidemic the population of the districts first infected, consisting of about 4,000 persons, abandoned the town by order of the authorities, and encamped on the Neutral Ground. They took with them their bedding, furniture, &c., and this was the case with families which had had some of their members previously attacked.

Had the disease been of a contagious character, what must have been the result?—naturally, that the fever would spread in the camp, huts, &c., but this was not the case.*

There was *no spreading* of the disease from the convalescents belonging to the army who went out to camp. But one circumstance is particularly worthy of notice. I was informed by Mr. Hugh Fraser of the Civil Hospital that, of great numbers of poor who had been treated in this establishment, one third at least rejoined their families in camp, taking with them their clothes, &c., and yet no spreading of the disease! Many of these were discharged for want of accommodation previous to their being advanced in convalescence, and some while still bleeding from the mouth.† Can proof stronger than this be required?

* The Superintendent of Quarantine in the second edition of his book (1848), p. 34, says,—“Upon the Neutral Ground there is a constant and strong breeze or current of air sufficient to destroy the contagion of any disease, and in this way the contagion not spreading is to be accounted for.” We have here an instance of the never-failing efforts of this gentleman to lose no opportunity of turning everything to his own views of contagion; for instead of there being this *constant and strong breeze* on the Neutral Ground in the summer months, the air is often stagnant, and the heat intolerable. In my frequent visits to the camp during the epidemic, I often experienced an insupportable oppression in the tents; and my opinion is that the poison productive of Yellow Fever, instead of being generated in the bodies of the soldiers, and then dissipated by strong breezes, is not produced at all on the naked surface of this locality.

† In the Yellow Fever epidemic at Leghorn in 1804, circumstances analogous to these occurred. It is recorded that 6,000 persons left that city for Pisa after the outbreak of the disease, and that the French army, *with 180 men labouring under it*, also removed to the same place; yet under these circumstances the disease was not propagated at Pisa. See *Palloni* on the Yellow Fever in Leghorn in 1804.—Addenda (I.), p. 224.

In corroboration of the non contagious nature of the Yellow Fever, founded upon the facts already related, the course of the disease in civil life at Gibraltar furnished the most ample details. It would be an endless task to point out instances in which, contrary to all the laws of contagion hitherto observed, two, three, or more susceptible members of a family escaped, while exercising every kind office towards an equal number labouring under the disease. It is not my intention to attach any weight to the escape of an *individual* in a family;—this we know is an every-day occurrence in diseases reputed contagious; but in diseases of this last description, men of the highest intellect and experience have been employed in obtaining an average of the numbers who may escape; some have rated this as 1 in 26, while others estimate it as 1 in 34.

Now the instances of exemption in susceptible persons at Gibraltar, bore no relation whatever to these proportions,—for did space permit, I could quote a great number of instances, in which the majority lay quite on the side of those who escaped, though “susceptible.” The weight of such facts must, among those devoted to the examination of such subjects, be of great effect, in leading to the formation of just opinions; but such persons must perceive that where a single *individual only* has been affected, while surrounded by *many* susceptible persons, the proof of its not being transmissible, becomes so multiplied, as to approach demonstration.*

As a conclusion to be drawn from the observations of unprejudiced people, it must be stated that the number attacked bore no proportion to those exposed to contact with persons labouring under the disease.† Coincidences, giving an appearance of contagion, may, and frequently do, present themselves, during an epidemic; but it is presumed, such circumstances, will in the present day, have little chance of influencing public opinion, however ingeniously represented. The occurrence of attacks in an inverse ratio to exposure (had contagion existed) was one of the most striking facts which occurred. By the kindness of several army medical friends, I was furnished with memoranda from the different regiments, from whence it appeared that in families, among the military, the father, mother, or child, had been taken ill in 144 instances; and that the total number

* Among numerous instances, the case of a woman named Aekerman, of the 73d Regiment, was remarkable, inasmuch as she remained throughout her illness in a shed where there were no fewer than 18 or 20 susceptible individuals, without the disease being transmitted to any of them.

† A strong circumstance illustrative of this occurred in the family of Mr. Duguid, some of the members of which having contracted the disease, while residing in the town, were removed whilst ill to the Neutral Ground, and lodged in a confined shed. In that shed several others of the family had, as I have been informed, communication with the sick; but they were not affected with the disease. Here the safety to the unaffected was manifestly owing to their having left an infected locality.

composing those families amounted to 516, of which 372 were not attacked. In these cases the exposure, did contagion exist, was infinitely greater than among unmarried soldiers, who slept separately.

It may be observed that in families the endeavours to conceal disease, are very great, on account of the unwillingness of the parties to be separated. Having examined the returns of those attacked, out of the above 516, I can state that it was impossible to trace the illness of any one member of a family to contagion. Whenever more than one were attacked, they had been equally exposed to local causes; where they had not been so exposed, they remained unaffected, though in the closest contact with the sick relative in the house or tent. This was very clearly established in many instances.

“Ninety-two women,” says Mr. Amiel, “of the 12th Regiment and 190 children, who were never allowed to re-pass Bayside barrier, have continued perfectly healthy; and one woman only (the armourer’s wife), who during the period obtained leave to enter and stay a few days in the garrison, caught the fever and died of it.”

“Several of these women passed the night in the same beds with their husbands, attacked with, and labouring under, the epidemic fever, and besides continued, as well as their numerous children, to use the same bedding after the men had been removed to the hospital; but in no instance was the disease contracted by the wife or the children, even after that full exposure.”

No regiment had so few women or children exposed to the malaria of the Rock as the 12th; and the exemption was precisely in proportion. We seem to approach demonstration at every point upon which this question can be taken up.

Other circumstances must not be omitted, in order to show that there was no analogy between this epidemic and diseases reputed contagious. In epidemics of small-pox, measles, scarlatina, &c., other diseases exist simultaneously, but in 1828, as in similar epidemics at Gibraltar and elsewhere, all other diseases seemed to pass into its form, or to be altogether prevented from appearing.*

In diseases reputed contagious, changes of temperature have not so manifest an influence in their disappearance; and it seems incompatible with contagion, that Yellow Fever epidemics should, as they are known to do, appear and disappear at particular seasons of the year.

In regard to the efficacy of fumigations in preventing the propagation of diseases reputed contagious, the analogy with

* I am to be understood as speaking of what seems to be a general law; exceptions certainly occurred.

Yellow Fever ceases. Having been very intimate with Dr. Arejula, I received from him a short memoir on the inefficacy of fumigations. He intended that this memoir should have been published with his work on Yellow Fever in 1806; but it was suppressed, by order of his then absolute Government.

Let us enquire from whom our soldiers could have been receiving the contagion during the four months the disease continued. Were our men mixing with the civil population, and entering houses which might have contained sick persons?—No;—the soldiers were for more than three months of the period encamped outside the walls, without having been allowed to enter the town except on duty. It may be said, that the mass of those attacked merely marched to their guard-houses, to which, certainly, the inhabitants were not in the habit of resorting, and where the soldiers, as certainly, came in contact with no persons suffering from Yellow Fever. Arrived at his post, a soldier was placed as sentry, not in the midst of a dense population; not with people about him, from whom disease might be transmitted; nothing of this occurred. The guard in charge of the ruins of Pompeii is not in the midst of a deeper solitude, than were often the soldiers at Gibraltar, as they inhaled the “death-blast,” *in districts abandoned by the inhabitants*. Contagion!—Our men were far removed from contact with sick people;—far out of hearing;—far out of sight. If, in the face of all this, the doctrine of the contagious property of Yellow Fever find active supporters, likely to influence Government, I know of nothing which can set the question at rest, as far as British colonies are concerned, except the intervention of a British Parliament.

LOCAL CAUSES.—Together with what may be inferred from the foregoing, many circumstances occurred demonstrative of the local origin of the Yellow Fever at Gibraltar in 1828; and similar observations have been made wherever that disease has been known to prevail.

Among the troops, those who suffered in the first instance, were the Royal Engineers, quartered in the lower part of the district,* in which the fever first made its appearance. It was remarkable, that the 43rd next suffered seriously, though quartered at the Casemate Barracks, at the opposite (northern) extremity of the town.† This admits of explanation. The 12th Regiment, in barracks in the town range‡ (situated like the Engineers in the lower part of the district first infected), left the town for camp on the Neutral Ground on the 5th of September; at which time a few cases had appeared among

* Plan, Letter (R.)

† Plan, Letter (P.)

‡ Plan, Letter (Q.)

them; and, as long as that regiment discontinued furnishing town guards (18 days), they ceased to have fevers, except among those who had from their duties as orderlies, clerks, &c., remained in town. The 42nd and 43rd, both in the same range of barracks, had been taking by turns for three weeks each, the duties in the neighbourhood of the sickly district; and as it then happened to be the turn of the latter the men had these guards together with duties on other posts abandoned by the 12th. With this exception the 42nd and 43rd were similarly situated.

Under these circumstances, the 43rd Regiment passed from a state of perfect health* (not having a case of fever of any kind for a fortnight previously) to that of deplorable suffering; and before the disease had made an impression on any of the other regiments of the line the 43rd suffered a serious loss. This was at a time when the sentries were solitary beings, in the midst of desolation.

The effect of locality was here manifest.

The posts which seemed to cause the greatest number of sick, were those called North Flat Bastion, Southport, Convent, and Provost.†

Not only were the men of the 43rd among the earliest attacked, but the disease assumed, in their case, an extraordinary degree of malignancy. The late Dr. Hennen (principal medical officer) in his report to the Director-General of Hospitals in London, states that "the impress of death seems to be on the men of the 43rd, who have been attacked."

Acting Deputy-Inspector Dow also made a statement of the extraordinary virulence with which the disease appeared in the 43rd, and it was noticed by the medical gentleman who acted with me as well as by others. Circumstances like these are commonly known to accompany diseases arising from malaria; they occur frequently in Yellow Fever.‡

* There had been upwards of 30 cases of cholera, and one death, in the regiment after its arrival from Portugal some months previously.

† Plan, Letter (W.) Moorish Castle.

‡ Similar facts have been observed by Dr. Jackson at Philadelphia, also by Drs. Monges and Hodge of that city. It is stated by the two latter, that in one place, or at a particular time, almost all their patients recovered; while in another place, or at another time, the disease was so virulent that almost all their patients died. In the mild epidemic of 1793 at Philadelphia, M. Monges, out of 300 patients, lost only a child. Authors abound with accounts of these differences. In an epidemic at Cadiz we are told that the regiment of Saragossa lost 800 out of 1,200. By a statement of the authorities at Barcelona, the loss at one establishment in the epidemic of 1821 was 1,265 out of 1,739. M. Berthe, at the head of a commission during an epidemic at Seville, states that the loss in one part of the town was only 1 in 18, while in another it was one-half. The same gentleman has observed of the epidemic at Cadiz in 1800, that in some parts of the town the mortality was tenfold greater than in others. In an epidemic at Xeres it has carried off one-third of the population, consequently in all probability four-fifths of those attacked. M. Moreau de Jonnés states, that in an epidemic which he saw in Martinique almost all attacked died. In Sir William Pym's book we have many instances of great mortality at one point, and of comparatively little loss at others.

In the Gibraltar epidemic of 1814, Mr. Donnet, Surgeon of the Naval Department, did not lose more than 1 out of 32 cases; while the disease at other points, was much less manageable. In 1828, while it ran so mildly through a family at one point, as not to destroy a single victim, the disease carried off the whole of a large family at another; and out of 34 Jews treated in the Civil Hospital, in the early part of the epidemic 33 died. Are not these things far from characterising epidemics reputed contagious? We know that contagious diseases, will differ in force, as it respects individuals according to certain circumstances, but constant differences, such as these, are not found to take place.

The greater security which has been remarked to exist in upper floors in diseases from malaria was, in some instances, distinctly verified at Gibraltar in 1828. In a particular instance, the whole of a family, living on an upper floor, escaped; while every one of another, on the ground floor of the same building, suffered.

The existence of local causes was also demonstrated by persons remaining well on the Neutral Ground, while attending their sick relatives, but being attacked on their return to town, a considerable time after, when not in contact with sick.

The late Assistant-Surgeon Fraser, 73rd Regiment, who had been living in the lazaretto establishment, on the glacis near the Neutral Ground,* remained well while there, but was seized, on his return within the garrison, which exposed him infinitely less to contagion, had such existed. One man having a family of several children, had a part of them attacked early in September, while residing in the quarter where the disease first appeared. He removed into camp, where the children, who had been sick, joined the family after recovery, and the whole continued well whilst they lived in camp. He returned home some time after, when he conceived he might do so with impunity, (expurgations, &c. having taken place), but the remainder of the family were soon attacked. It would be an endless undertaking to quote all similar instances which occurred. The medical world may find abundant details in a work since published by Dr. Chervin.

The inefficacy of perfect seclusion from persons labouring under the disease, as well as from all who came in contact with the sick, was clearly exemplified in 1828, and other epidemics of Gibraltar, (see the remarkable dockyard case in 1813.†)

One remarkable instance, under my own observation, occurred in the house of a lady residing near Rosia Barracks.‡ Her niece was attacked with the disease, which ended in death, though the most rigorous segregation had been adopted for some time previous. In another case, a soldier of the garrison,

* Plan, Letter (H.)

† Addenda, (C.), p. 210.

‡ Plan, Letter (S.)

who had been in attendance on the sick in hospital for three days, became alarmed, and left his post, without having been affected. After an interval of several days, however, passed in solitary confinement in the Provost Prison (Moorish Castle),* this man was attacked and died. I should be at no loss for many others under this head.

The admission by all (including Sir W. Pym), that whenever the Yellow Fever has been epidemic in Spain, it has appeared at a particular season, and declined, with equal regularity, so soon as a low temperature has set in, must always have great weight in establishing the local origin of the disease; heat being known to favour the production of diseases originating from noxious emanations. †

Whatever was observed as to the influence of local causes in producing the Yellow Fever in 1828, had been noticed by impartial people in the progress of former epidemics at Gibraltar.

The neighbourhood of Boyd's-buildings, ‡ famous in 1804, again became one of those points from whence the origin of the disease emanated, though no trace of the houses remained

* Plan, Letter (W.)

† Some occurrences affecting the lower animals, observed during the epidemic, were proofs of the existence of a morbid atmosphere. Dr. Arejula had previously observed, that in Cadiz, Malaga, &c., birds abandoned those places while the disease continued, but returned on its disappearance. He informs us that he announced to the inhabitants of Malaga that their epidemic was about to leave them, merely because he saw the sparrows returning to their usual haunts; he tells us that dogs especially suffered from the same symptoms as the persons attacked; next were cats, then horses, fowls, and canaries, the latter died after throwing up blood; dogs and cats also suffered this last symptom, but vomiting and dark stools were more common in the latter. "Of three dogs (setters) and two cats in my house none escaped an attack, and in all I observed the black discharges from the bowels; the dogs recovered and the cats died. The horses which I saw die had either the marble coldness of the extremities, or general convulsions. It may be presumed that pigeons and other birds suffered the same disease, but I did not witness them, neither did I witness this in fishes; but it was stated that at the time there was great mortality among them." I am not aware that quite so much as this was observed at Gibraltar in 1828, but it is beyond all doubt that there was an extraordinary mortality among animals, as dogs, cats, monkeys, parrots, &c. In a small and remarkably ill-ventilated yard, in which several servants were taken ill, three dogs died. Mr. Bonfante, a merchant at Gibraltar, drew out a list of eleven animals that died on his premises. Mr. Duguid, another merchant, also informed me that nine or ten dogs had died on his premises, and the skin of the greater number became yellow. Two of these dogs I myself saw, while still alive, with yellow skin. It was stated by one of the servants that the oldest of these animals had a short time previous to her attack abandoned the place where she usually slept, and endeavoured to establish herself in an upper part of the building. Mr. Danino, also lost several animals. A monkey, belonging to Mr. Griffiths, died, the skin and eyes being distinctly yellow. A goat-keeper, residing on the southern part of the Rock, lost a considerable number of his flock. I was informed by some of the private practitioners that they saw black vomit in some of the animals which perished. It is a curious fact that in the same place in which Mr. Duguid's dogs were seized in 1828, a fine healthy pointer brought from Spain died the following year, labouring under precisely the same symptoms,—yellow eyes and skin, bloody dejections, &c. In the examination of this dog no inflammation of any of the viscera was discovered.

‡ Below letter B. on plan.

which had existed in that year.* As in former epidemics, the disease was confined to the town for some time, and was then found to break out at several points in the southern part of the Roek.† Similar to this is the progress of other diseases not arising from contagion.

If it be asked, why local causes produce the Yellow Fever at Gibraltar, &c., only at intervals of many years? I would ask, in turn, why the cholera which raged at Ceylon in 1817, had not appeared there for 48 years previously? I would ask why, in 1812, ague appeared, for the first time in certain high situations in Portugal? It might be asked, why there was an interregnum from the appearance of the Yellow Fever at Martinique, from 1807 to 1816, as stated by Dr. Dariste, who practised in the island for 30 years, and who tells us that the old inhabitants speak of intervals of 25 years between the prevalence of their epidemics. A long interregnum is well known to occur at Antigua, St. Vincent's, Sta. Lucia, Philadelphia (46 years) Charleston (41). &c., although the commerce of these places usually varies but little.

I would ask, why the very remarkable disease which appeared a few years ago in Paris, to which the name of *Acrodynia* was given by the Faculty,—had not before appeared?

A hundred such questions might be asked to which it would be equally difficult to reply, as that respecting the periodical appearance of Yellow Fever. But the question is taking its natural course, and for 100 advocates, which 30 years ago, might be found on the side of contagion, 10 will not now appear (in countries where it is permitted to express free opinions) who support that side of the question. Such may be really worthy persons who have not had sufficient opportunities of studying the disease,—and those *interested* in maintaining its exotic origin.

It must be confessed, by all unprejudiced persons, that the closest investigations have failed in the discovery of the immediate, essential, *sine quâ non*, cause of Yellow Fever.

Up to the latest authorities, ‡ we can obtain no more satisfactory hypothesis than the high probability of the influence of certain terrestrial emanations. What seems quite established

* Dr. Prout, in his Bridgewater Treatise, expresses an opinion to the effect that a small quantity of malaria may prove a source of considerable mischief.

† In a Yellow Fever epidemic at Seville in 1819, the disease was limited to the quarter called Sta. Cruz, and certificates from physicians, then given to Dr. Chervin, prove that *out of that quarter* servants in lazaretto, hospitals, &c., were not attacked. At Arcos two large districts of the town remained uninfected, when the Yellow Fever appeared there in 1801 and 1804, though the communication with them was free.

‡ Dr. Bartlett, professor of the Transylvania University, in his splendid work "The History of the Fevers of the United States, 1847," and Dr. John Davy, Inspector-General of Hospitals, in his Report on the Yellow Fever, lately prevalent among the troops at Barbados. See Addenda (K.), p. 226. As also in his very valuable notes to the "Account of the Yellow Fever Epidemie of Guiana," by Dr. Blair, (London 1850.)

in my mind, however, is, that whatever else the special mysterious agent may be, it is never produced by *contagion*.

The days have passed when the malaria from marshes was considered as essential to the production of Yellow Fever, and now the general opinion seems to be, that this disease is developed both on high and low lands;*—that, in fact, even on hills of considerable height, far from the vicinity of marshes, it appears occasionally as an epidemic.

Facts collected from a series of meteorological tables drawn up by engineers and others at Gibraltar, in the course of many years, are calculated to disprove the influence of certain agents, which have been considered indispensable to the production of Yellow Fever. These agents may, however, have some effect on particular occasions.

With respect to a temperature much above the usual standard of the season at which the disease occurs, I find that though heat has been one of the conditions under which Yellow Fever has always been produced; the Gibraltar epidemics have not occurred in the *very hottest years*.† The summer of 1828 was, on the whole, one of the coolest remembered for a long time, for, though it averaged for the *five* warm months (from June to October) rather a higher range than the preceding year, the difference is too trifling to be considered, when it is observed that several healthy years had been much hotter, and that in the *three* months in 1827, corresponding to those which *preceded* the epidemic of 1828, the average heat was greater by $2\frac{1}{2}$ degrees.

For many days the contrast between our calamitous state in the garrison, and the beautiful scenery presented in the bay, and from the opposite coast, heightened by the clear atmosphere, and the occasional refreshing breezes from the Atlantic, was very remarkable.‡

Indeed, the very flourishing state of a flower-garden, near the scene of desolation at our hospital, was far from conveying pleasurable sensations.

State of Barometer.—On this point there is little to be said. By observations for 10 years, from 1816, its greatest height had been 30·90 inches, its lowest descent 28·62 inches.

‡ *Regarding the quantity of rain*, to the influence of which great weight has been attached, I have in my possession a table of the indications of the pluviometer at Gibraltar from 1790, showing that the Yellow Fever has prevailed both in seasons

* See, especially, Macculloch on Malaria. &c.

† Similar facts have been noticed by Humboldt, in treating of the origin of Yellow Fever at Vera Cruz (Political Essays, vol. 4, p. 202.) We have also statements of the best authorities as to the epidemics in Spain not appearing oftener in the hottest seasons, though one or more such instances may have happened. In 1752 the heat was so excessive at Gibraltar, that the inhabitants during the night fancied their houses were on fire, and birds forsook their nests, but no epidemic took place.

‡ I think Miss Pardoe, in her "City of the Sultan," speaks of some such contrast during the prevalence of the plague at Constantinople.

remarkable for the fall of much rain, and in those in which comparatively little has fallen.*

With respect to particular winds, I may observe that (contrary to what appears to have been the case in 1804) there had been no unusual prevalence of easterly winds, either preceding or during the progress of the epidemic. It appears that, in the three months ending August, 1828, there were only 39 days of easterly wind, and only 19 in the months of July and August; whilst in the corresponding three months of 1827 (healthy year), there were 59 days of easterly wind; 39 being during July and August.

I think it must appear, that the examination of meteorological variations, furnishes no satisfactory information respecting the cause of Yellow Fever at Gibraltar.

It may be as difficult to explain the deviations of nature from her ordinary course, as it is to account for her more usual operations. We can only say, that such things are so ordained by the will of God. Admitting the production of Yellow Fever, in particular localities, from concurrences in the external agents, is but adding one more disease to the numerous class already withdrawn from the ranks of contagion by our reason and experience. Who now seeks for the cause of spasmodic cholera, epidemic dysentery, influenza, &c., otherwise than in an assemblage of circumstances, in each case peculiar, and possessing a power of excitement specific in its nature? †

It seems to be assumed that, during Yellow Fever epidemics, chemical tests have discovered no very appreciable alteration in the air; this may be the case, and yet nobody can doubt that the air inhaled in those places may be most deleterious to health. But during what epidemics have chemists, competent to such a task, been employed on those investigations? No where, I may venture to say, in such a manner as to produce conviction on this point. Is it likely that peculiar chemical properties could be detected in the atmosphere of all places where remittents, intermittents, &c., reign? I presume this could not be expected; but experiments hitherto attempted for the purpose of discovering the precise chemical composition of the atmosphere, during a Yellow Fever epidemic, cannot be considered as otherwise than vague and undecisive.

However contagionists may dwell on the exotic origin of the Yellow Fever, it can be always discovered that they have

* In the healthy season of 1796, 62·87 inches of rain fell; in 1806, also healthy, 14·76 inches only; in 1828, 21·50 inches;—the average being about 30 inches.

† As our experience increases we feel the force of the opinion of Leibnitz, that the diseases to which the human frame is subject are as various as the colours of flowers.

In Humboldt's "New Spain" we have the following passage:—

"The phenomena of life are, no doubt, subject to immutable laws; but we know so little of the whole of the conditions under which disease is introduced into the functions of the organs, that the pathological phenomena appear to exhibit to us, in their succession, the strangest irregularities."

a secret feeling as to the development of this disease being dependant upon some assemblage of circumstances connected with season, hitherto not fully understood, and that many of them are found ready to exclaim with Arejula,*—

“*In a word, while the days lengthen, and the sun approaches our hemisphere, we may be sure that the fever, which has so afflicted us of late years, will not attack us; but when that luminary begins to retire from us, and during the whole period of its retiring, we may fear it; especially if we have had a sterile season, and if hot and dry winds have prevailed for many days successively.*”

Many of the facts which I have advanced concerning the last Yellow Fever epidemic at Gibraltar will be found corroborated in the writings of the following gentlemen who were present, viz.—Dr. Thomas Smith, then surgeon to the 23rd Regiment; † Mr. R. Amiel, ‡ then surgeon to the 12th Regiment, who had seen three epidemics previously at Gibraltar, Mr. Hugh Fraser, for some years surgeon to the Civil Hospital, having formerly served in the 12th Regiment; § Mr. P. Wilson, || assistant-surgeon, attached for many years to the Civil Hospital, having been previously in the naval service.

In Dr. Smith's paper in particular (reviewed in the United Service Journal for February, 1831), the public have an opportunity of seeing how cruelly the statements of the Superintendent of British Quarantine, to the Spanish Academy, were calculated to operate against the deepest interests of Gibraltar, by favouring the necessity, in epidemic seasons, for our neighbours cutting off free communication with that garrison, which, notwithstanding their usual very kindly feelings, they are too prone to do. See also Addenda (G.), p. 216.

From the writings just referred to, it must be evident that I have not been the only person, or the first, to take the liberty of impugning the statements of Sir William Pym** on subjects connected with the Yellow Fever at Gibraltar.

* Arejula on Yellow Fever, p. 228.

† “*Brief Sketch of the Fever which prevailed at Gibraltar in the Autumn of 1828; together with Observations on the Answers of Sir William Pym to Queries from the Royal Medico Chirurgical Society of Cadiz, addressed to him on the origin and nature of that disease.*”—(Edinburgh Medical and Surgical Journal, No. 106.)

‡ Edinburgh Medical and Surgical Journal, April 1831.

§ London Medical and Physical Journal, January, March, April, and May, 1831.

|| Nos. 352, 353, and 354 of the Lancet, afterwards translated into French at Paris, and notes added by Dr. Chervin in Dec. 1830.

** In a letter, dated 23rd April, 1847, addressed by Sir William Pym to the Lords of the Council through the Hon. W. Bathurst, relative to a Report on the Fever at Boa Vista, by Dr. M. William, is furnished a copy of an official Report from the Board of Physicians, &c., convened at Gibraltar, by an order of the 24th January, 1829, for investigating the question as to the liability or non-liability to a second attack of Yellow Fever, to which the signatures of the several members are affixed, with the names of Dr. CHERVIN and Mr. FRASER—*dissenting.*

In the second edition of Sir W. Pym's book, however, p. 279, where a copy of the same document is professed to be given to the public, we find a list of the members at the commencement of the Report, but the signature attached is merely “LOUIS, President,”—*whereby the world is led to believe that the Board were unanimous.*

REFERENCES TO THE PLAN OF GIBRALTAR, IN ILLUSTRATION
OF THE YELLOW FEVER EPIDEMIC OF 1828.

A.—Nos. 24 and 25 districts, in the southern and elevated part of the town, 80 or 90 feet above the level of the sea. For the most part rocky, drains and cesspools consequently very near the surface. Fig. 9 considered as the point where the first cases of the epidemic appeared.

B.—Civil Hospital, a well-ventilated establishment, with spacious wards, about 90 feet above the level of the sea; in charge, during the epidemic, of Surgeon Hugh Fraser, and Mr. Peter Wilson, Assistant Surgeon.

C.—New Protestant Church (now a Cathedral) a little to the south of King's Bastion, used as an auxiliary hospital a short time previous to the termination of the epidemic.

D.—Naval Hospital, on a rocky site, about 80 feet above the level of the sea, has accommodation for the sick of six regiments. The wards are spacious, and admit of communication throughout; there is, besides, a wide corridor with entrances to the wards. This hospital, however, being several hundred feet lower than the rock behind it, the medical officers and hospital servants did not experience total immunity from attacks of Yellow Fever, as did those serving at the barrack, used as a temporary hospital, on Windmill-hill.

E.—Ordnance Hospital, on a rocky site, at a great height above "Naval Hospital."

F.—Windmill-hill Barrack, usually occupied by one regiment; used as an hospital by the 73rd Regiment, from the 25th September to the end of the epidemic; situated on a rocky site, about 400 feet above the level of the sea, and having perfect ventilation on its south, east, and west sides. On the north side there is but a narrow passage between it and a stupendous mass of rock.

G.—"North Sheds" Hospital, three wooden buildings, consisting of ground floors only; erected, towards the close of the epidemic, on a low piece of ground close to "Inundation," outside the "North Front" defences. Here, where ventilation was perfect, as at Windmill-hill, no medical officer or hospital attendant* was attacked with Yellow Fever.

H.—Large marquees pitched on the *glacis*, outside the North Front defences; used as a lazaretto, for the reception of the civil poor, in the early part of the epidemic; in charge of Assistant-Surgeon Fraser, 73rd Regiment.

I.—Sheds established about the end of December, as an hospital of observation, and for the non-epidemic cases of three regiments.

K.—Tent Hospitals for non-epidemic cases among the civilians; this the extreme point of our lines towards Spain.

L.—Civil encampment at north front, to which between 4000 and 5000 of the inhabitants retired during a period of three or four months. This locality had been found a place of refuge in epidemics of former years. Ferdinand VII., King of Spain, contributed a quantity of wheat to the poor on this occasion. The tents were supplied by the British Government. It was agreed by all parties, after investigation, that the expected immunity was experienced here, although great numbers of convalescents, friends, and relatives, from within the walls of the town, had freely mixed with the people in these tents. The soil is sandy, with the exception of a few acres cultivated as gardens, &c. The length of the isthmus from the British to the Spanish lines is 1650 yards; its breadth, from Gibraltar Bay to the Mediterranean, varying from 1200 to 1750 yards.

* The following were on duty at this hospital:—Staff-Surgeon Barry, Surgeon McLeod, 42nd Regiment; Assistant-Surgeon Galeani, 43rd Regiment; Assistant-Surgeon Davis, attached to 43rd Regiment; Assistant-Surgeons Gillice and Dick, 12th Regiment; Assistant Staff-Surgeons Bell, Fagg, and Moore; Hospital Servants,—Thomas Ormsby, Samuel Cordingly, William Blevin, and Joseph Davis, 12th Regiment; John Watt, 42nd Regiment. With the exception of Mr. Gillice, all the medical officers had but lately arrived from England, and neither officer nor man had had Yellow Fever previously.



M.—Military encampment, occupied by the 12th Regiment, (which got under canvass on the 5th September); the 42nd Regiment (which got under canvass on the 22nd September); and the 43rd Regiment (which got under canvass on the 17th September). This camp was established about 12 days after the first appearance of Yellow Fever in the town. The general exemption from attacks by the soldiers limited to this camp has been denied, but that such exemption really existed is shown in the Report.

N.—At this side of the isthmus, many of the respectable classes, with some of the Sappers and Miners, took refuge, and obtained the usual immunity.

O.—A village of wooden houses, then occupied during the warm months by families in comfortable circumstances as being cooler than the town, and considered as a proper place of refuge. This village has been since destroyed.

P.—Casemated Barrack, near North Barric, within the town; occupied on the breaking out of the epidemic, by the 42nd and 43rd Regiments, which afterwards encamped with the 12th Regiment at North Front.

Q.—“Town Range” Barracks, occupied by the 12th Regiment, previous to their encampment.

R.—“Hargrave’s Parade” Barracks, immediately within the southern part of the town; occupied at the commencement of the epidemic by the Royal Sappers and Miners.

S.—“Rosia” Barracks, in the southern district, close to the little bay called Rosia; situation not elevated. Occupied by the 23rd Regiment until the 14th September, when they encamped on “Europa Flats,” which have a rocky surface, and were previously considered as a place of refuge. These Flats are about 100 feet above the level of the sea; and when encamped on them, the 23rd experienced immunity from the disease.

T.—“South” Barrack, built on a commanding and rocky situation, about 80 feet above the sea. Rooms large and well ventilated, occupied by the 94th Regiment, until the 10th of October, when they encamped on Windmill-hill.

W.—Old Moorish Castle, at a considerable height within the northern extremity of the town; where some companies of the Royal Artillery were quartered until the end of September, when they encamped partly above the “Sand Pits,” marked 6, and partly on Windmill-hill.

X.—Sheds in dockyard, converted, as well as a brig in the New Mole, into convalescent hospitals, towards the close of the epidemic.

Catalan Bay, partly occupied by fishermen, and partly as a military post, to which there is an approach for foot passengers by a narrow way. The immunity experienced at the open camp-ground was not enjoyed at this village, which is on a sandy beach, backed by 1400 feet of rock, and therefore without free ventilation.

Reference to Figures on Plan.

Fig. 1.—Signal-house, 1276 feet above the level of the sea.

Fig. 2.—Lower Europa, or Europa Point, 60 feet above the sea; where, according to Sir William Pym, the late Colonel Fyers placed himself in quarantine during the epidemic of 1804,—whereas the garrison orders of Gibraltar show that officer performed his duties in garrison with his company, whilst residing on this Point at that period. The locality, however, proved then a place of safety, as it subsequently did in 1828.

Fig. 3.—Bruce’s Farm, 712 feet above the sea.

Fig. 4.—Ince’s Farm, 680 feet above the sea.

Figs. 5, 5.—Two Camps, “Poco Roco” and “Buena Vista,” situated high up the rock, near Bruce’s Farm, and to which the Sappers and Miners were sent in the early part of the epidemic, in the belief that it might be found a safety spot. The expected immunity not having been found there, the men moved to the Neutral Ground.

Fig. 6.—Camp-ground, near “Sand Pits,” not far from the New Mole, occupied at the commencement of the epidemic, by one company of the Royal Artillery.

Fig. 7.—Parade-ground, in the midst of an extensive space, laid out in public walks, and ornamented grounds for the recreation of the inhabitants.

Fig. 8, 8.—Dwellings in the district called “South,” in which several cases of Yellow Fever occurred *previous* to the attendants on patients in the “Naval Hospital,” (D) being attacked.

WEST INDIES.

Many unprejudiced persons object to drawing conclusions as to non-contagion from the experience of one place only, and I hope I may, therefore, be excused in stating, from some of the highest authorities, the results, at many places, where the disease is known to have appeared.

Those who have entered into the subject of Yellow Fever, must be aware of the impossibility of giving, even a slight sketch of all that has been brought forward on this question. The discussions, up to a certain period, may be said to be condensed in the works of Blane, Fellowes, and Pym, on the side of contagion; and of Baneroff, Jackson, Maelean, and Burnett on the opposite side. The elaborate works of Dr. Bancroft especially, (*Essay on Yellow Fever; Sequel to an Essay on Yellow Fever.*) embraced whatever could at the time be deemed the most essential points for consideration.

It is usual to refer to Père Labat's statement of the alleged importation of the disease into Martinique, in 1682, by the ship "Oriflamme," from Siam; to which it is objected that he has merely given vague reports of circumstances which occurred several years before his arrival in that island; and that if the disease had been contracted at Brazil, where the ship touched, it was palpably erroneous to say that it had been imported from Siam. In the second volume, page 119, of Dr. Chisholm's work on the Fevers of the West Indies, he gives an account of an importation of the Yellow Fever into the island of Martinique, in 1796, which is proved to be erroneous, in a paper in the eighth volume of the *Medico-Chirurgical Transactions*, by Dr. Fergusson, Inspector-General of Hospitals, who served with the troops on board the ship alleged to have imported the disease. There can be no doubt that among those who supported the views of Dr. Chisholm on contagion, respectable names are to be found; but even so soon after the periods to which he refers, as 1801, when it fell to my lot to witness devastating epidemics in Martinique and Dominick, my experienced medical chief, Dr. Theodore Gordon, sen., did not think it expedient to suggest any measures applicable to contagious diseases, nor did an apprehension of contagion ever escape the lips of any of my seniors.

Within the last 30 years much valuable information upon Yellow Fever has been furnished by Dr. Fergusson; and it is to be regretted that want of space precludes the possibility of extracting, as freely as would be desirable, from documents by a gentleman of such great experience, tact, and candour. His paper, above referred to, is particularly interesting, and relates chiefly to transactions which occurred while he was

principal medical officer in the West Indies, in 1816, &c. Dr. Fergusson's convictions are quite opposed to the doctrine of contagion; and it will be admitted, that the facts which he has adduced in that paper are calculated to make a powerful impression.* He shows that, without restraint as to intercourse, situation alone (as in the present day constantly occurs among our troops in the West Indies) gives great comparative exemption from the disease,—that it “is confined, in all the islands, to the sea-coast;” and that, “at Barbados, our hospitals, of late years, have been in a regular course of importation of the Yellow Fever from the navy; but not even inoculation has been able to produce the disease upon any member of the hospital corps, by whom I may truly say that the sick have been received with open arms; for the anti-social doctrines of ideal contagions are not preached among us here, to the prejudice of duty and humanity.”

Dr. Fergusson's remarks corroborate the fact mentioned by other authors, as to “different parts of the same town being differently affected; and so limited often is their influence, that one story of a house,† or one section of a ship, will be strongly affected by it, while other parts of the same tenements remain healthy.” In the paper from which these extracts are taken, will be found details of the highest value, relative to this disease among the crew of the “Regalia” transport, employed in carrying black recruits from the coast of Guinca to the West Indies in 1816; from which it appears that the crew were in good health previous to taking in many tons of green wood at Sierra Leone,‡

* The results of Dr. Fergusson's experience have been officially lodged in the Army Medical Department in London, and also published since his death by his son. (Longman, 1846.) See Addenda, (L.), p. 229.

† At Gibraltar, during the epidemic of 1828, this was observed to have been the case in a very remarkable manner; and Dr. Ramsay, surgeon to the forces, states in an official report, dated Barbados, 20th December, 1825, that “in certain barracks and hospitals the very diagonal of particular apartments will afford a tolerably accurate demarcation of safe and unsafe position of beds.” See on this point also Dr. Wilson's work on Yellow Fever (1827), in which the disease is shown to have been confined to men whose berths were on a particular side, or in a particular part of a ship.

‡ It may be worth while drawing attention to an extract of a letter from Mr. Showers, ten years colonial surgeon of Sierra Leone, the first being the year (1816) in which the Regalia sailed from that place:—“During my ten years' stay at Sierra Leone I never saw any other fever (the ordinary fever of the country); but when a fever broke out there similar to the Yellow Fever of the West Indies, attended with black vomit, which was supposed to have been brought there from the Mediterranean by a ship called the Caroline, this I recognised as a different fever from the one I have just described as the common fever of the country; and to my knowledge none of the medical men then at Sierra Leone had any difficulty in distinguishing it as a new and different disease.”—(Aiton's Dissertations on Malaria, &c., 1832.) Mr. Showers adds, respecting the fever of 1823, that he had “his doubts whether it was imported or contagious; I am much of opinion that it proceeded from the atmosphere;” which doubts he was the more justified in entertaining from the fact that for two years previous no yellow fever epidemic existed at any port in the Mediterranean. To those who had been led to believe that the black-vomit fever had been not unfrequently exported from the coast of West

—that great sickness (chiefly dysentery) prevailed among the blacks during the voyage; and that several deaths took place; but the Yellow Fever was altogether confined to the crew; and, in the words of Dr. Fergusson, “the ship, on her arrival at Barbados, was not put under restraint or quarantine, but communicated freely with the sea-ports of Barbados, the Saints, Antigua, and Guadaloupe; landing the severally ill or dying subjects of that disease amongst the inhabitants, and at the hospitals at Barbados and Antigua, without communicating infection at any of these places; and, finally, after having undergone a thorough purification, sailing from Guadaloupe for Europe, crowded to a very great degree with rebel French prisoners and their families from the gaols, under the most dangerous circumstances of health, with a case of Yellow Fever actually dying on board the day before she left Basseterre Roads, but without communicating any such fever to the unfortunate passengers,—leaving any behind her at Guadaloupe,—or importing any at the ports she ultimately reached.” Dr. Fergusson, when speaking of an epidemic which took place in the following year, says, “What a different interpretation the facts I have collected would have borne, had the present epidemic that afflicts the islands broke out in the ordinary course of the seasons, a year earlier, at the time the ‘Regalia’ was here.” I shall only offer one more extract. “At Martinique they established a strict quarantine, particularly directed against Guadaloupe, and they have been consumed with Yellow Fevers; but at Dominique, Tobago, St. Vincents. &c., where they established none at all, they have not had, in as far as I have learnt, a single case, although at the last-mentioned islands both the ‘Tigris’ and ‘Childers’ ships of war, imported distinct, well-marked instances of the disease from *Point au Pitre*, on the evacuation of Guadaloupe.”

Inspector-General Tegart, for some years Medical Chief in the West India islands, in his official report to the Army Medical Board, March 10, 1823, says, “In the various annual reports of the medical officers in this command, I have not seen one favouring, or supporting the theory of contagion: they are all on the other side.”* This seems the more remarkable, as isolation of Yellow Fever cases, was a measure approved of a short time before by Mr. Inspector Green, one of those gentle-

Africa, its reputed birth-place, this visitation as a perfect stranger, and its alleged importation from Europe, must appear somewhat strange. The healthy state of the *Regalia* transport previous to her sailing from Sierra Leone, together with what appears by Mr. Showers’ letter as to the non-existence of the yellow fever there in 1816, would seem to favour Dr. Fergusson’s idea of its having been produced by the green wood just laid in previous to her sailing, and to “foul ballasting that had not been changed for years.” In an official report of Mr. Hartle, it is stated, on the authority of Mr. Mortimer, of the Royal Navy, that the *Nayden* frigate having taken in green wood at Dominica lost one-third of her crew by fever.

* Addenda, (M.), p. 230.

men who had previously served in the West Indies, about the time of Dr. Chisholm. Mr. Tegart, referring to certain cases which occurred at Antigua, in 1801, says, "The result is that this was decidedly Yellow Fever, and that the disease ceased on removal from the place, and was confined solely to those persons who occupied the room. Here is cause and effect."

The official reports of Dr. Bone to the Army Medical Department are worthy of particular consideration, he having been long resident in the West Indies. The substance of those reports are to be found in the thesis published by his son, (now of the Medical Department in the army,) in 1846.

I am not aware that any one has been more competent to speak of West Indian fever than Dr. Bone; he says in one of his reports that "the first important result which I have proved in the 'Naval Hospital'* is that the Yellow Fever, as it is called, cannot by any possibility be communicated from one person to another." He further states, "that 35 white servants had been employed at the hospital without being attacked," and concludes by observing, "so few in the West Indies believe the doctrine, (contagion) that they may very safely be permitted to enjoy their own opinions—they cannot do much harm."

The facts brought forward by Dr. Bone against contagion, are so numerous, that I am precluded by their bulk from affording them adequate space.

Dr. Bone's son informs us that Inspector Green, principal medical officer in the West Indies in 1818, 1819, and 1820, (having the sanction of the authorities in England,) attempted to introduce the quarantine regulations then used at Malta, into the West India islands; but these measures being strongly opposed by Dr. Bone, and the great majority of the medical officers on the station, the doctrine of contagion "died a natural death" soon after the departure of Mr. Green from the West Indies. †

* Barbados.

† The following remarks are by Dr. John Hunter—"Observations on the Diseases of the Army in Jamaica, 1796:"—

"In military physic the great improvements to be made are not so much in the cure as in the prevention of diseases, which depends altogether upon a knowledge of their causes.

"If disease arise from the air, contaminated by the foul ground of a camp, or the exhalations of a marsh, it can only be avoided by a change of situation, or by taking care not to come within the sphere of activity of such noxious causes.

"Let it be supposed for a moment possible that a mistake should be made, and that the camp, or remittent fever, be not considered as proceeding from their proper causes, but believed to depend upon contagion. It is evident that complete destruction to all must be the consequence of such an error; and, in medical history, there is reason to fear more examples than one of this might be produced.

"By a contagious disease, is to be understood a malady arising from a poison generated in the body of the sick, which produces in others a similar disease. It is peculiarly characteristic of such diseases that persons of all ranks and descriptions

So powerful were Dr. Bone's convictions before his departure from the West Indies, that, with a view to impress the truth on the minds of all those concerned, he sent a formula for the production of Yellow Fever, to the Army Medical Board,* of which the following is an abstract,—

“Take of soldiers lately arrived in the West Indies † any number; place them in barraeks in a low, wet situation, or in the mouth of a gully, or on the brink of a dry river, or on the summit of a mountain, and to leeward of a swamp, or of uncleared ground, and where there is no water, or only bad water; let their barraeks be built of boards, or of lath and plaster, &c.

[Here follow a variety of other circumstances.]

Let these directions be attended to in Trinidad, or even in Barbados, and especially when the air is stagnant, or charged with noxious vapours subsequent to long drought, the soldiers will soon die, some of them yellow, some of them with black vomit.”

In Dr. Blair's late work on Yellow Fever edited by Dr. Davy, 1850, p. 55, we also find a formula for giving that disease to nurses:—“The way to give a Yellow Fever nurse the Yellow Fever was not by bringing him in close contact with the sick, but by discharging him or her from the hospital. After knocking about town for a few weeks and getting into the malarial districts, they would, it is likely, be brought to hospital as yellow fever patients. Several nurses discharged for bad conduct suffered in that way.”

I cannot pass over the official statements of Mr. Hartle, Deputy Inspector-General of Hospitals, who served in the West Indies, during a period of more than 30 consecutive years. His report for 1822 contains particulars of a most interesting kind, relative to the introduction of many cases of the Yellow Fever into the island of Antigua: in one place he remarks, “It is a pleasing reflection, and a source of great gratification to me,

are equally affected by them. Wherever they prevail the old inhabitants of a country suffer as much as those that have arrived lately. But this is never the case in the Yellow Fever, remittent fever, or even intermittent fever, for such as are seasoned to the country or climate suffer infinitely less than new comers.

“But what may be considered as an *experimentum crucis*, to prove the non-existence of contagion is, when the sick leave their usual residence, and go to other situations which are healthy, without spreading the disease. This constantly happens in the remittent fevers of the West Indies; for the good effects of changing the air of the towns for that of the mountains is so well known that it is very generally practised; but, certainly, without the slightest suspicion of any mischief arising from any contagion carried by the sick.

“When disease arises from a cause generally diffused, separation from the sick does not avail. Thus, ships of war have gone into a harbour in the West Indies, and have had no intercourse with those on shore, or with the crews of other ships, and yet in a few days the men have been seized with the prevailing fever in great numbers.

“If these observations be applied to remittent or Yellow Fever there will be no ground for believing either to proceed from contagion.”

* Report of the epidemic in Trinidad, 1818. † See Appendix, No. IV., p. 381.

that, notwithstanding 107 cases of Yellow Fever, as distressing and malignant as any I have before witnessed, have been, by three vessels, imported into this island since September, 1821, we have not a *single instance* of any individual but those directly exposed to the local causes [ships] having been attacked." He states that the sick received on shore from one of those ships ("Dasher" transport) were attended by Europeans. Mr. Hartle's account of the Yellow Fever on board the "Pyramus" frigate, which arrived in English Harbour from Barbados, on the 3rd of January, 1822, is highly important. The following are the principal facts recorded by this gentleman. Neither the officers nor men had been exposed to solar influence, or other exciting causes. One of the principal reasons assigned for the breaking out of the disease was, that this ship had been "injected with coal-tar, which, with bilge-water, caused remarkable effluvia." The only ships on the station injected with coal-tar were the above, the "Esk" sloop-of-war, and "Dasher" transport, "all of which suffered, the former and latter especially, with a similar type of disease, Yellow Fever, in its most malignant form." He states that the crew of the "Pyramus" were landed at English harbour, and the ship dismantled. When the limber-boards were removed, the effluvia from the hold surpassed everything which he had "ever before experienced." A boatswain looking into the hold from the lower deck, while an inspection by proper officers was going on, fainted, and passed afterwards through a formidable attack of the disease. Mr. Hartle himself, (I believe a native of the West Indies) who was one of the officers appointed to examine into the state of the ship, escaped with slight indisposition. He states, respecting the others, that "every individual present at the opening of the holds and limber-boards was attacked by the prevailing disease." Although the frigate had been only six months from England, and was believed to have been a short time out of dock, large mud-boats of filth were removed from her at Antigua, which was nine inches deep in the hold. The negroes employed in removing this mass were obliged to go on deck occasionally, so insufferable was the stench, and three of them had the disease. The after-magazine, immediately under the gun-room, was found in the worst state, and this accounted, in the opinion of Mr. Hartle, for every officer's servant, and servant of the gun-room mess having suffered. Objections having been made to the removal of the crew beyond the dockyard, after their landing on the 15th, several cases occurred up to the 30th, in consequence of the men having gone on board clandestinely; the crew were therefore encamped at some distance from the dockyard at Berkeley Fort, while a cleansing and thorough purification

took place; and, on returning on board, their health continued good.

AMERICA.

Passing now to the American continent, my limits admit but of a few brief remarks. Up to the year 1793, almost all the medical men in the United States were believers in the communicable nature of Yellow Fever; but each epidemic diminished the numbers, so that, in 1825, according to an American commercial almanac, while 567 were against the doctrine of contagion, 28 only remained in favour of it, throughout the whole country. The public manner in which the celebrated Dr. Rush, once a believer in contagion, retracted his opinion, is matter of historical notoriety.* At New York the doctrine of contagion was long and ardently supported by Professor Hossack and Dr. Townsend, both of whom wrote much upon the disease. The facts which presented themselves to Dr. Beck in the course of the epidemic at New York (1822), caused his public retraction of faith as to contagion in the following year;† and Dr. Townsend appears to have admitted‡ that, of about 200 persons of all grades of the profession three or four only believed in the transmissible nature of Yellow Fever. “In 1793 the profession were almost unanimous in the belief of its contagious character, and no little courage was required to brave the storm an opposite opinion would have awakened. In this generation an equal unanimity prevails in the profession as to the non-contagious nature of the disease; and he who advances the opposite doctrine seriously, is deemed no more worthy of notice, much less a refutation, than would be an advocate at this time of the Ptolemaic system.§” The following statement from the pen of M. La Roche, French consul at Philadelphia, is extracted from a letter to a friend, 20th July, 1830. “A friend of mine, Dr. Morrel, has lately arrived from the Havannah. During a few days’ passage three persons died of Yellow Fever on board; and a fourth, taken ill on board, died in the New York quarantine establishment. The sick were all cabin passengers, and received the germs of the fever in the port. The other passengers, who merely em-

* Dr. Rush, [quoted by Sir W. Pym, 1st Edit., p. 208] says “He begs forgiveness of the friends of science and humanity, if the publication of that opinion has had any influence in increasing the misery and mortality attendant upon that disease. Indeed, such is the pain he feels, in recollecting that he ever entertained or propagated it, that it will long, and perhaps, always deprive him of the pleasure he might otherwise have derived, from a review of his attempts to fulfil the public duties of his situation.”

† New York Med. and Ph. Journ., No. viii., p. 472. See Addenda (S.), p. 238.

‡ Chervin.—De l’Opinion des Médecins Américains, p. 11.

§ See Amer. Journ. of Medical Sciences, August 1829, p. 523.

barked at the moment of departure, without having waited in port, remained well, and that notwithstanding the inevitable contact arising from 12 or 15 persons sleeping in a small cabin. Dr. Morrel and the other passengers were placed in quarantine, but during the time every body went to see them."

Much interesting matter relative to the Yellow Fever epidemics which have prevailed in America, may be obtained by consulting various pamphlets published by Dr. Chervin.

That in North America the disease has not been propagated by the removal of persons labouring under it, even when carrying with them their bedding, &c., has been shown by observations made by medical men of upwards of 30 cities and towns, according to a report upon Dr. Chervin's documents, read at the Academy. By those documents it appears that attendants of all classes on Yellow Fever patients constantly remained exempt from the disease, *where the hospitals were placed out of particular local influences*. This it appears was the case at the hospital at Bush Hill, near Philadelphia; in that of Belle-vue, near Fort Stephens; in that of the Navy at New York; also in those of Norfolk, Baltimore, Providence, Newport, Boston, and New London. These most important facts are verified by Drs. Chapman, Redmond, Coxe, Mease, Lehman, Mitchell, Parish, Jackson, Perkin, Miller, Tucker, Thomas, Baeke, Harlon, Coates, &c., of Philadelphia; by Drs. Anderson, Brown, Walker, Drake, and Osborne, of New York; by Dr. Areher, of Norfolk; by Dr. M'Cauley, of Baltimore; by Dr. Weaton, of Providence; by Drs. Turner and Waring, of Newport; by Dr. Townsend, of Boston; and Dr. Lee, of New London. Proofs to the same effect, collected in the West Indies, were laid before the Academy, by Dr. Chervin, in 1827.

Dr. Pariset has admitted that the Yellow Fever "is not contagious in America,—whether it had ever been so, or has ceased to possess that property."*

With respect to America, this subject has perhaps been more fully entered upon by Humboldt than by any other person. In his Political Essay, (vol. iv.) he mentions that at Vera Cruz the idea of the importation of the disease from the Havannah and other places had been entertained; but, by the facts which he furnishes, there seems to be no cause for doubt as to the disease being indigenous. The subject of contagion is investigated by this celebrated man in the spirit of philosophy for which he is so remarkable: we are shown to what an

* "N'est point contagieuse en Amérique, soit qu'elle ne l'ait jamais été, soit qu'elle ait cessé de l'être."—Bulletin des Sciences Méd., tom. xii. p. 126.

Dr. P. F. Thomas, after an experience of 30 years at New Orleans, fully agrees as to this disease never exhibiting, under any circumstances, a contagious property.—See his Treatise on Yellow Fever, Paris, 1848.

extent one test of the communicable nature of a disease—that of taking people, whilst ill, into healthy districts—has been applied, and the result proved to be entirely against the doctrine; that not only at Xalapa, and higher up in the interior, but at the farm of Eneero, a short distance from Vera Cruz, the disease is found to confine itself to the persons of those who may arrive with it in their systems, notwithstanding the freest intercourse with others.* Every observation made by Humboldt relative to Yellow Fever, is of high interest: one seems peculiarly deserving of attention; which is, that although the disease usually prevails among the newly arrived *every year* at Vera Cruz, it never prevailed *epidemicallly* there between 1776 and 1794, although the intercourse with the Havannah and other places where the disease continued to prevail, was quite free. He even says that during the eight years preceeding 1794, “there was not a single example of the *vomito*, although the concourse of Europeans and Mexicans from the interior, was extremely great, and the sailors gave themselves up to the same excesses which are now laid to their charge.”† Such a fact is the more worthy of notice, as it does not appear to have depended on unusual atmospheric states; and one can scarcely concede any degree of importance to the circumstance of the streets having been, for the first time, paved, in the year 1775,—seeing that the disease has recurred so often since 1794,—and has prevailed so frequently in the well-paved streets of St. Pierre Martinique, of Cadiz, Gibraltar; &c.‡

SPAIN.

To turn now to Spain: it appears that so far back as 1761 (21st October), a royal edict was issued at Madrid, which set forth that all experience of the intercourse between the Havannah and Cadiz had proved that the black-vomit fever was not

* “If the earth’s surface did not reach to considerable elevations within the tropics, the highly characteristic form of needle-leaved trees would be almost unknown to the inhabitants of the equatorial zone. In common with Bompland, I have laboured much in the determination of the exact lower and upper limits of the region of Coniferae, and of oaks in the Mexican highlands. The heights at which both begin to grow (los Pinales y Encinales, Pineta et Querceta) are hailed with joy by those who come from the sea-coast, as indicating a climate where, so far as experience has hitherto shown, the deadly malady of the black vomit (*vomito prieto*, a form of yellow fever) does not reach. The lower limit of oaks, and more particularly of the *Quercus Xalapensis* (one of the 22 Mexican species of oak first described by us) is on the road from Vera Cruz to the city of Mexico, a little below the Venta del Encero, 2860 (3048 E.) feet above the sea. On the western side of the highlands between the city of Mexico and the Pacific, the limit is rather lower down, for oaks begin to be found near a hut, called Venta de la Moxonera, between Acapulco and Chilpanzingo, at an absolute elevation of 2323 (2480 E.) feet.

“I found a similar difference in the height of the lower limit of pine woods on the two sides of the continent.”—*Humboldt’s Aspects of Nature*, vol. ii. p. 154.

† Political Essay on the Kingdom of New Spain, vol. iv. p. 194.

‡ Addenda (N.), p. 233.

contagious. It would appear from this that the opinion of the court physician Cerro, sent to inquire into the nature of the Cadiz epidemics of 1730 and 1731, had been more regarded than that of Navarette, who attributed their origin to importation from America. It seems curious that Arejula, when he wrote in 1806, should have committed the error of supposing the black-vomit of the Havannah, Vera Cruz, &c., to be a different disease from Yellow Fever. He appears in the dilemma of contending for contagion and importation under one denomination (*Yellow Fever*), while he admits that "our ships never brought the germs of the black-vomit, even though they had the disease on board when leaving our possessions;" and (in America) "a succession of ages proved to the medical men that the disease was not communicable." This physician, with Drs. Coll and Amellor, also of Cadiz, made a declaration that the medical men commissioned to inquire into the causes of the epidemics of 1732 and 1734, pronounced it not to have been propagated by contagion. In all subsequent epidemics, a majority of the Spanish practitioners have favoured the doctrine of importation and contagion; but it would appear from the assertion of Professor Salva of Barcelona, in his *Trozos ineditos*, that the opinions of some had been influenced by political or other causes, for he does not hesitate to state, that when he applied for information, private opinions were obtained, in some instances, differing from those which had been publicly declared. A commission, instituted at Cadiz to inquire into the origin of the epidemic of 1810, declared that in none of the six outbreaks which had occurred previous to 1805, could the origin of the disease be traced.* The importation of the disease alluded to by the Commission as having taken place in 1802, had reference to the disembarkation of about 500 cases from the fleet of Admiral Gravina on its arrival from the West Indies. They admit that though many of the cases had the most characteristic symptoms, and though the communication with the city was free, "the disease did not spread, nor was it in any way communicated." It is also stated that though many cases were sent to the Aguada Hospital at Cadiz, from a French fleet, in 1807, with which a free communication was permitted, the disease did not spread.

Many details connected with the origin of Yellow Fever epidemics in Spain up to the year 1820, are to be found in Hurtado's "*Nueva Monografia*;" in his "*Decadas*;" in Mr.

* "En ninguna de estas epocas, exceptuada la de 1805 en que vino de fuera, se ha podido averiguar con exactitud, el origen de esta calamidad publica." "At none of these periods, except 1805, in which it was imported, could the origin of this public calamity be determined with exactness."—*Extract from the Report of the Commission.*

Doughty's book;* in the writings of Dr. Pariset; and in various pamphlets published since 1827 by Dr. Chervin.

The terrific epidemic at Barcelona in 1821, gave a new impulse to the question of contagion. The statements furnished by the medical Commission sent from France to make researches into the nature and origin of that disease, left a strong impression on the minds of many in the profession, favourable to its possessing a communicable property; and the "*Histoire Médicale*" displays literary powers of a high order on the part of Dr. Pariset, who was at the head of the Commission. Dr. Chervin, however, followed Dr. Pariset, step by step,—not only at Barcelona, but through all parts of Spain where circumstances had been detailed respecting the propagation of the disease.

The result has been,—such a collection of documents as had never before been laid before the public on any question of this kind. As elucidating a long-pending question of high importance to society, their value may be judged of from the opinion of the Academy of Medicine, which has been already referred to in the introduction to this Report. I regret that space will not permit my furnishing many valuable extracts from the works of this gentleman, published in 1827 and 1828.† We are there furnished with the statements of Dr. Pariset and others regarding the yellow-fever epidemics of Spain; and it cannot but be admitted that Dr. Chervin has shown many inaccuracies had crept into those statements, and that the events warranted conclusions quite opposite to those which had been drawn.

Dr. O'Halloran, who went to Barcelona to observe the epidemic of 1821, had, previously to Dr. Chervin's visit, pointed out some of the extraordinary mis-statements of Dr. Pariset; and in his book some interesting statements are furnished relative to occurrences at other points in Spain.

At the same time with Dr. O'Halloran, the late lamented Dr. Charles Maclean visited Barcelona for the special purpose of examining all the circumstances connected with the above-named epidemic.

Many who have studied Dr. Maclean's works, are of opinion that he was rather extravagant in some of his views, but the writings which he has left on the subject of this epidemic are quite sufficient to place him in a distinguished light amongst the profession.

* "Observations and Inquiries into the Nature and Treatment of the Yellow or Bilan Fever."—London, 1816. Mr. Doughty served as staff-surgeon in our army at Cadiz in 1810.

† In the "*Revue Critique*," by Dr. de Fermon of Paris, printed in 1829, a *resumé* of the occurrences here spoken of may be found.

On the breaking out of the fever the population of Barcelona was computed at 120,000. Within the walls of the town were found medical men, who, disregarding the evidence of their senses, closed the door against all evidence unfavourable to contagion,—adhering only to tradition. Indeed being often threatened by punishment from Government on the one hand, and by popular tumult on the other, they are obliged to yield to the most absurd errors, from which humanity becomes liable so cruelly to suffer.*

But, from a certain number of the local medical men at Barcelona, and of the foreign physicians then assembled, a goodly company was formed, resolved to show loyalty to the profession. From among these, a manifesto was issued, signed by ten Spanish physicians, two French, two British, and one American, to the effect that the disease was not contagious.†

Dr. Piguillem, who states that he had been considered as the “*prince of contagionists*,” was amongst the number of those who subscribed; having (together with 13 other Barcelona practitioners, who then also changed their opinions), adopted non-contagionist views some time after the disease had prevailed.

Those who are interested in the subject may derive much information from perusing the work of Dr. O’Halloran, p. 67.

An event remarkable in the history of Yellow Fever, occurred

* Extract from “O’Halloran on the Yellow Fever of the South and East Coasts of Spain,” p. 110.

“*Origin of the Yellow Fever at Tortosa in the year 1821.*”

“The disease, according to the latest official reports of the authorities and Board of Health, appeared in the person of Salvador Curto, a soap dealer, who sailed from Barcelona on the 1st of August, and arrived at Tortosa on the 4th.”

At p. 113, Dr. O’Halloran says. “The first marked case at Tortosa appeared in the person of a seaman, named Buenaventura Puich, belonging to the brig Ventura. After his entrance he held no communication with Salvador, nor with any of his family. When black vomiting, and other unequivocal symptoms of a malignant disease made their appearance, he was forcibly taken from his bed at eight o’clock at night, obliged to dress himself, and, with a rope around his neck, forcibly dragged by four armed soldiers, to a lazaretto in the country, at which he arrived after a march of three hours. The lazaretto, being unoccupied, was forced open, and the unhappy and helpless victim, without assistance, or even water to allay his thirst, was left to his fate for the remainder of the night without a bed on which to repose, without an individual to whom he could speak, and without nourishment of any kind. He died on the 15th, with the usual symptoms of Yellow Fever, viz., yellowness, hæmorrhages, black vomiting, &c.”

At page 117 he says, “The unexampled cruelty of the Board of Health towards Buenaventura Puich was not suffered to pass unnoticed. The military governor, Don Miguel de Haro, supposing that its conduct was a species of refinement on brutality, not sanctioned by laws either human or divine, remonstrated against the proceedings, and preferred a formal complaint to the Political Chief of the province, who, in all probability, treated it with little attention; for the propriety or non-propriety of treating a fellow-creature, while under disease, with such brutality, has not hitherto been a subject of investigation in the province of Catalonia, at least if I am informed correctly.”

† Addenda, (O.), p. 233.

at the port of Passages in the province of Guypuscoa, a place known to many British officers, it having been the rendezvous for transports while our troops occupied the Pyrenees in 1813-14. It is difficult to give an idea of this singular port, situated at the bottom of the Bay of Biscay, and forming a sort of appendage to St. Sebastian's. The entrance is between precipitous rocks, and is so narrow and oblique as to be with difficulty discovered. The town consists of one small street, placed on a shelf of rock, so narrow that it does not admit of the passage of carts, or, I believe, horses, while the base of the mountain of Olcarsó, is almost in contact with the houses, which are badly ventilated, filthy, dark, and crowded.

We are informed by Dr. Arrutti, a physician resident in that part of the country, that, in June, 1823, a brig, named "Donostiarra," sailed from the Havannah with a clean bill of health; and that, having lost one man on her voyage (from ordinary disease, as far as was known), she obtained pratique at Corunna, after ten days' quarantine. She subsequently put into St. Andero, and arrived at Passages on the 3rd of August, with all on board healthy. This vessel had been employed in the trade of these ports. As she had been at Corunna and St. Andero, previous to her arrival at Passages, she was not here put in quarantine.

The cargo, consisting chiefly of sugar and tobacco, was discharged; and, for several days, a great many people went on board without any disease having broken out either amongst them or the crew. On the 15th, a custom-house officer, who had been several days on board, was taken ill, and died on the third day, black-vomit having appeared. This man was said to have been much engaged in the hold looking after contraband goods. On the 22nd, a man who had been in the hold, surveying the ship's timbers, likewise died. Some of the planks of one of this vessel's sides having been found greatly decayed, 12 carpenters were employed in removing them, and six of the 12 were attacked in quick succession. The opening in the ship commenced on the 19th, and, on the 23rd, the disease began to appear, in an unequivocal form, in the houses close to which she was moored.

Dr. Arrutti proceeds to show that the disease did not extend beyond the houses opposite the ship; that where others were attacked whose habitations were at a distance, it was occasioned by their having remained for some time within the space to which the malaria from the ship appears to have been limited, and the names and occupations of those persons are given. The heat was excessive, $28\frac{1}{2}$ ° Reaumur (about 96° Fahr.), and the course of the wind favoured the conveyance of the noxious emanations from the ship to the houses: he gives the number of each house in which persons were attacked, and names

the points to which individuals labouring under the disease were conveyed, stating that notwithstanding the adjuncts of *crowded, filthy, and badly-ventilated habitations*, the disease did not spread; "whether they died or recovered, to none out of the focus was the disease communicated."*

He observes, "The inhabitants of Passages took the precaution of not making long delays in the focus of infection;—they visited their relatives and friends, and performed towards them all the rights demanded by humanity and society, and the disease became extinct almost in its very origin. † It therefore results that this fever, examined according to the character it presents, does not offer a character of contagion from individuals. It was afterwards discovered that many, evading the sanitary regulations, passed out without certificates of health, and took with them clothes, even from the houses where people had died; but, notwithstanding this, there was not the least spreading of the disease in the neighbouring country. If any deaths took place in Loyola, Renteria, or elsewhere, the disease in such cases had been contracted within the focus of infection.

"If this disease had been transmissible by individual contact, what could have put a stop to its progress?—no human power: for the people who had been in the closest contact with sick, convalescents, and clothes belonging to the sick, distributed themselves, when the cordon was about to be placed, at St. Jean de Luz, St. Sebastian's, Bayonne, and other places."

Here then was an instance—not of Yellow Fever imported—nor, rigidly, of *the cause* of Yellow Fever imported, but a development of the disease by the concurrence of a number of agents. On other occasions, it has been observed not to break out until vessels had been cleared of their cargoes; and in this instance the great heat, reverberated as it must have been from the rock close to which the lightened ship was moored, may be easily understood as having been highly favourable to the extrication of a noxious principle from her decayed planks. ‡

In another account of this outbreak, by Dr. Montes in the 14th vol. of *Hurtado's Decadas*, its origin is attributed to sources within the town itself, independent of the ship, as publicly de-

* Page 70.

† It appears that the ship was burned and sunk.

‡ The origin of this disease at Passages, from sources on board, has been admitted by Dr. Audouard of Paris, a professed contagionist.—See "Revue Médicale," Sept. 1824, p. 83.

This gentleman, who carried his views of contagion even to intermittent fever, was a physician in the French army in that part of Spain, and cordons were of course not forgotten; but in advocating his opinions on the occasion he says ("Revue Médicale," vol. iii. p. 224), "Nevertheless it must be confessed that the contagion at the Port of Passages was not so manifest as at Barcelona;" and leads to the conclusion that the first circumstances connected with this outbreak went to prove contagion, the last, the contrary. So that on the whole Dr. Arrutti's statements must be received as those most worthy of credit.

clared by Dr. Zeubeldia; and we are told that a similar disease prevailed there in 1780 and 1791.* There is no discrepancy, however, in the statements as to the disease not having been propagated from person to person; though Dr. Arrutti seems to apply the word contagion † to the extension of the disease within the limits of the noxious emanations from the ship.

AFRICA.

In the same year in which the Fever took place at Passages, another circumstance occurred, which has been frequently alluded to.

By an official Report, drawn up and published in 1824, by Dr. (now Sir William) Burnett, one of the Commissioners of the Medical Department of the Navy, it appears that in the early part of the preceding year a fever made its appearance at Sierra Leone in a form different from the usual remittents of the country, and stated to possess symptoms characteristic of Yellow Fever. The alleged importation of this disease by the merchant-ship “Caroline,” is completely refuted in that Report; and at page 24 an extract from the gentleman at the head of the medical department at Sierra Leone is given, in which it is stated, that from all the evidence which could be procured in the colony, there was reason to conclude that the disease was *non-contagious*. A curious circumstance, to which there is perhaps no parallel except that which occurred under my own observation in the West Indies, is related by this gentleman, viz., “that European females and children were perfectly exempt.”

On the 23rd December, 1823, a statement was circulated by Sir Gilbert Blane, calculated more than any thing which had previously appeared to prove the importation and subsequent communication of Yellow Fever. It appears that the “Bann,” sloop-of-war, left Sierra Leone for the Island of Ascension at the latter end of March, 1823; that a malignant fever prevailed among her crew, during and for some time after the voyage; and that, on the eighteenth day after her anchoring at Ascension, a disease alleged to have been similar, and in some instances

* M. Bally, in his Report on the Yellow Fever at Passages, in 1823, states, pp. 5, 6, that similar epidemics were said to have prevailed there in 1780 and 1791 after arrivals from the West Indies, and also that the French troops in 1808-9, and the English in 1813-14, suffered much from fever at the same place. “Here,” [in the latter instance] “there were no suspicions as to the American typhus; it was the typhus of Europe, that destroyed a great many victims in the hospitals.”—See Addenda, (P.), p. 235.

† I had been long acquainted with Dr. Bobadilla, at Gibraltar, and considered him a believer in contagion, in the sense of direct or indirect transmission from one person to another; but, to my surprise, he assured me that, at an hospital in Los Barrios, some years previously, he explained to everybody how the attendants on Yellow Fever patients were not more liable than others to attacks.

accompanied with black vomit and yellow skin, broke out in the garrison of that island which consisted of 35 men, besides women and children.

It appears by Sir William Burnett's Report, that an error had crept into Sir Gilbert's statement regarding the health of the crew when she left Sierra Leone; but what is of much greater importance to the argument we find altogether omitted by the latter, though supplied by the former, viz., "On reference to the journals of medical officers who, at different times, had charge of the garrison before the appearance of the late epidemic, not only has dysentery and hepatitis been very prevalent, as well as occasional attacks of fever, but likewise a fever called the bilious remittent,* in the year 1818, attacked almost every man on the island, which the assistant surgeon attributes to an unusually wet turtle season, when the men are much exposed by watching at night to turn these animals.

"Moreover there is, in the journal of Mr. Robert Malcolm for 1818, a case of this disease, which commenced on the 1st of June, and terminated by death on the next day, with all the symptoms of yellow suffusion and black vomit, &c., which are said to characterize the Yellow Fever; and having shown this case to the surgeon of the 'Bann,' now in London, he declares it to be exactly similar to the cases of fever which lately proved so fatal in the 'Bann,' and amongst the marines at Ascension." †

Here then, whatever might have been the nature of the disease which prevailed in the "Bann" and at Ascension, in 1823, we have evidence of the existence of the same disease in the island, and about the same time of year, in 1818, without the remotest suspicion of its having been then imported.

This, on the obvious principle that what may in one year happen on a small scale, may, from an extension of the cause, happen on a larger scale in another, greatly enhances the force

* It seems remarkable that though perfectly known for some time past that the true Yellow Fever has been prevalent this year (1850) on the coast of the Brazils, (Bahia, Pernambuco, and Rio Janeiro), and it being also ascertained by returns to Somerset House for the quarter ending 31st March, from H.M. ships "Cormorant," "Tyne," and "Creseent," that most malignant cases (*Yellow Skin, Black Vomit, Hamorrhages,*) prevailed in each of these ships—the term *Yellow Fever* does not once appear on the official returns;—they all appear, under the head of "Bilious Remittent," so clear, I presume, do the remissions appear in those latitudes. If we consult the army statistics of the mortality among the troops in the West Indies over a period of 20 years, the adoption of the same classification at Jamaica will also seem remarkable, for while we know, that within the period mentioned, the troops in that island have suffered more than in any other of the West Indies, TWENTY CASES ONLY of Yellow Fever appear on the face of the returns during the 20 years; the convictions of the various medical officers stationed there, leading them to a belief that the term Bilious Remittent, so frequently used in different parts of the world, might better convey some of the prominent and more constant phenomena of the disease.—See Appendix. No. III., p. 282.]

† Page 10.

of the concluding part of Sir William Burnett's sixth position, "that a disease similar to the fever in the 'Bann' might have prevailed in that island though the 'Bann' never had any communication with it."* He tells us that "the principal medical officer at Sierra Leone has come to the same conclusion in his official Report;" and I suspect that, greatly augmented as the facts bearing upon the question of contagion have been within the last few years, the majority who have paid attention to Yellow Fever will come to the same conclusion, rather than admit as a *propter hoc* that which, as far as the evidence goes, was simply a *post hoc*.

Sir William, though favourable to the belief of importation on this occasion, leaves the question open, and furnishes all the details to enable the profession to form an opinion. He points out erroneous statements as to the health of the island from the period of our occupying it (1815) to the epidemic year, 1823. He says, "Out of 130 cases of disease which are recorded in these journals, 12 died and 19 were invalided; and though perhaps all the fatal cases are inserted in the journals, it is well known that those documents seldom contain more than a third of the cases which actually occur." He tells us that, according to the medical gentlemen in charge of the garrison, although at a period immediately preceding this event, "they were on the whole very healthy, yet they were by no means exempt from disease."† He admits, "that after a most careful inquiry, it is impossible to trace the fever in question directly from the 'Bann,' to any individual of the garrison of Ascension;"‡ and indeed it appears that the first person attacked was not one of those known to have been in the ship or in contact with the sick, but a boy, respecting whom "it is neither known nor believed that he had any nearer communication with the sick of the 'Bann' than passing daily at no great distance from the tents to feed his father's poultry, and he was never on board that ship."§

The tents alluded to, about 500 yards from the garrison, were occupied as a hospital for the accommodation of the sick from the "Bann," and *all intercourse was interdicted*. He informs us that the restrictions on the intercourse between the ship and the garrison had not been much attended to, several persons having been on board after the landing of the sick; but that, from the time of the boy's illness, "every proper precaution was taken for preventing the extension of the disease to the outposts; notwithstanding which, six men, two women, and seven children, were taken ill at Springs, but fortunately none at the Green Mountain, though one of the men belonging to that post had been on board the 'Bann.'"

* Page 11.

^ Page 52.

‡ Page 53.

§ Page 14.

I shall only add that the surgeon of the "Bann," "an excellent and intelligent officer," ascribed the disease to the long stay of the ship in port at Sierra Leone, where the crew had been much exposed to the sun's rays in refitting her rigging, &c.; and that when this vessel had been on the Jamaica station, in 1821, a fever, with yellow skin and black vomit, appeared among a party of 40 prisoners, put on board for a passage;* which disease, according to the surgeon's journal, did not extend to the crew, nor could he "trace a single instance of disease to contagion," although "the smallness of the vessel, and other circumstances, would not admit of a separation between the sick and ship's crew."

That there were, on a *prima facie* view of the irruption of the fever in Ascension, reasonable grounds for *suspecting* the agency of contagion, there cannot be a doubt; but it is far from established by evidence, that the one was the cause of the other; and many will probably join in believing that to admit the transmission of this disease from individuals, would be illogical, and nothing short of admitting that to be *vrai* which is shown to be only *vraisemblable*.†

SHIPS.

Considering the mass of evidence before the public, it would be quite idle to deny the spontaneous breaking out of Yellow Fever on board of ships in various situations: one of the best authenticated instances is that of the "Bedford," in Gibraltar-

* Page 47.

† The outbreaks of Yellow Fever on the Western Coast of Africa cannot be passed over without reference to the work of Mr. James Boyle, R.N., M.C.S.L., colonial surgeon to Sierra Leone, entitled "Account of the Western Coast of Africa," London, 1831.

This gentleman's book displays great merit in several respects. We have from him, speaking of the epidemic of 1829 at Sierra Leone, that "Peculiar season is the immediate cause of epidemic fever;"—"that occasional cases of Yellow Fever are to be met with every year in Sierra Leone;" (230),—"that all fatal cases were under the influence of one general cause, *malaria*;"—(268), "that it appears that in Sierra Leone the disease was not contagious;"—"and that although very many hundreds of individuals, from various parts of the colony, visited the market of Freetown every day, not one case of the disease occurred in any of the villages."

Mr. Boyle (at 238) refers to what he considers the unfounded nature of the report of the Yellow Fever of 1829, being imported into Sierra Leone by H. M. ship "Eden," though he seems to admit that the disease might have been contagious on board that ship.

And, at p. 266, we have the following copy of a document which was posted, by direction of the Governor, in various parts of Freetown:—

"Freetown, Sierra Leone, May 27, 1829.

"WHEREAS a report has been in circulation throughout the colony that the fever now prevailing is of a contagious character, his Honour the Lieutenant-Governor, has deemed it expedient to call for the opinions of the principal medical officers upon this subject, and they, whose names are hereunto affixed, do declare, that there is not the slightest ground for the rumour that contagion exists in the colony.

(Signed)

"J. BOYLE, Colonial Surgeon.
M. SWEENEY, M.D., Deputy-Inspector
W. FERGUSON, Surgeon, R.A.C.C"

Bay, in 1794, of which there are official records at Somerset House.

In that year Yellow Fever was not prevalent in the garrison, and the crew arrived in health from the Mediterranean on the 24th of August. On Sunday the 6th of September, the crew having been mustered, every man answered to his name; but in the course of the week 130 were sent to the hospital, with fever possessing the characteristic symptoms: 11 died before the 24th of September, and others were left dangerously ill on the departure of the ship that day.

In this case the only feasible cause assigned was the shifting of the shingle ballast, with the object of trimming her. The disease did not extend beyond the crew.

The fact of the sailors of the British ship "Carnation," when put on board the French brig "Palinure," by which she was captured, in 1808, having been attacked with the disease, would admit of the explanation of their having, in common with the previous cases in the "Palinure," originated from sources within that ship.

The following is among the more recent instances of the spontaneous irruption of black-vomit fever on board ship.

H. M. ship "Blossom" had been employed in the summer of 1830 in surveying the Honduras coast; and in the month of August the disease commenced, which obliged the captain to go into Belize harbour, to obtain medical assistance from the garrison. Forty-eight cases were received into the military hospital between the 11th and 30th of August: two officers and eight men died, and "these cases were attended with black vomit," according to assistant-surgeon Watts, who forwarded notes of the circumstances in his official return to the Army Medical Board 24th September, 1830. Mr. Watts adds that the disease did not extend to the other ships, or to persons on shore.

In a report from Dr. Lindsay, surgeon of the "Blossom," to his department, he says, "I am of opinion that the cause of the present illness arose in the ship herself."

Among the naval surgeons of practical knowledge in this disease, I do not find many supporters of the doctrine of contagion. The following is from Mr. Mortimer, while serving as principal naval medical officer at Barbadoes: "We do not allow the fever of the West Indies, commonly called 'Yellow Fever,' to be at all infectious in any of its forms or stages. We have never known of an instance of its communication to patients at the several naval hospitals, whilst under cure for other complaints, though such patients have never been interdicted, on the contrary encouraged to offer every additional aid for the greater comfort of their suffering brethren."*

* See Communication to Commissioners of Transports, Med. Chir. Rev., vol. viii.

Among writers on Yellow Fever Dr. John Wilson, R.N., is deservedly celebrated. The following instance of British cruelty or ignorance, contrasted with Danish generosity, is recorded by him; he says,*—

"We are told by the advocates of contagion that measures restricting or preventing intercourse never can do any harm. In the following case—a case which I could scarcely have believed to have happened at Barbados in 1819—it is pretty clear that it did do harm.

"In October, 1819, Her Majesty's ship 'Euryalus' anchored at Barbados from Bermuda. She had a number of fever cases on board, and two men died after her arrival at Carlisle Bay. So strongly did the fear of contagion operate on the minds of men in power, that the hospitals were shut against the sick of the ship. It was intended to have taken measures for putting her in quarantine, but the safer method was *wisely* thought to be that of getting quit of her altogether. She accordingly went to sea, the sickness increased, and she put into the Danish island of St. Thomas, where the governor, actuated by the ordinary feelings of humanity, unfettered by prejudice, gave orders for the immediate reception of the sick into hospital. Seven men were landed at first, and numbers afterwards as they became affected. They were treated by Danish physicians; most of them recovered, and when the work of kindness was completed, they returned to their ship. It was never believed or alleged that they communicated disease to a single person on shore. 'Look on this picture, and on this.'"

On a parallel with the foregoing were the disgraceful occurrences which took place with reference to the "Eclair" from Boa Vista in 1845; when the sick were denied an asylum out of the reach of the malignant poison which was destroying them, even on our own shores.

It cannot be expected that all instances of the appearance of Yellow Fever on shipboard, should be noticed. In 1726 great havoc was made in the fleet of Admiral Hosier, lying off Portobello, by a disease alleged to have been Yellow Fever. In 1741, Admiral Vernon's fleet suffered from it off Carthagena, (S. A.) In 1742, the disease broke out in the same fleet off Portobello. In 1776, the Spanish ships "Angel" and "Astrea" suffered from the disease on their way to the West Indies. It broke out in the squadron of the Spanish Admiral Solano, in 1783. In 1785, in the Spanish ship "San Ildefonso." In 1793, in the "San Lorenzo," one of the ships of the Spanish Admiral Aristobal, bound from Cadiz to the West Indies. In the same

* Memoirs of West Indian Fever, 1827, page 77. See Addenda, (Q), p. 236.

year in the squadron of the Spanish Admiral Borja. In 1794, on board H. M. ships "Bedford" and "Kent." In 1795, on board the "Hussar" frigate on the American coast. In 1801, on board the ship "Penelope," carrying Irish emigrants to New York. In 1802, in a French fleet from Tarentum, bound to St. Domingo. In 1803, on board the "Hibbert" on her passage from Portsmouth to New York. In 1802, in the fleet of the Spanish Admiral Gravina. In 1807, in the "Phebe" in the West Indies. In the same year, in a French squadron in the bay of Cadiz. In 1808, on board the French brig of war, "Palinure." In 1813, in an English vessel which arrived at St. Domingo from England, as stated by Dr. Pinedo. In 1814, in a flotilla of Spanish revenue cruisers (*"guardacostas"*). Since this period it appeared in the following ships of war, on the West India station,—*"Iphigenia," "Wasp," "Tribune," "Sapphire," "Scout," "Tamar," "Bustard," "Thracian," "Rattlesnake," "Lively," "Isis," "Seylla," "Pylades,"* and *"Ferret,"* and many others, particularly in the *"Eclair,"** *"Growler,"* and other steam ships.

EFFECTS OF MIGRATION.

The following proofs are given from Dr. Chervin of the advantage of migration from localities where Yellow Fever takes place.

In his answer to Dr. Lassis, Paris, 1829, p. 13, he shows that the good effects of migration have been repeatedly displayed.—

"During the epidemic of 1800 at Cadiz, 14,000 persons left that city when the disease became suspected.† These people fled to the country, where they remained free from the epidemic,‡ while of the 57,499 who remained, 48,520 were attacked and 7,387 died.

"On the 1st September, 1803, the population of Malaga was 51,745, of which 3,730 migrated and escaped the reigning malady, while out of 48,015 who remained in the city 16,517 were attacked, of which 6,884 lost their lives.§

"In the month of July, 1804, the population of Malaga was 36,008, exclusive of the military garrison, prisoners, and other persons. Of these 4,548 fled, and thereby secured them-

* See Addenda, (R.), p. 237.

Much valuable information in reference to the spontaneous production of Yellow Fever on board ship is furnished by M. Forget in vol. x., *Medicine Navale*, Paris, 1832, p. 195, et seq.

† *Arejula Breve Descripcion de la Fiebre amarilla*, p. 434. "Yo conozeo un solo medio seguro y eficaz de libertarse del contagio, que es irse pronto lejos, y volver tarde," p. 339.

‡ P. 230, loc. cit.

§ *Salva's Trozos ineditos*, p. 12.

selves from attacks, while of the remaining 31,460—18,787 were attacked, of whom 11,486 died.” *

“While these things occurred at Malaga similar circumstances took place at Alicant, where the inhabitants amounted to 13,957; 2,110 left for the neighbouring country, where they remained free from attacks, while of 11,847 in the focus of the disease 6,971 suffered and 2,472 died. †

“All who know the Spanish peninsula must be aware of the exposure to privations under which emigrating populations must suffer in calamitous times. Yet, in these cases, they obtained security from the pestilence by which their neighbours who remained behind were swept away.

“At 20 other places besides those which I have mentioned, similar occurrences took place with similar results.

“While the Yellow Fever epidemic afflicted the inhabitants of Tortosa in 1821; 5,000 persons departed for the villages of Roqueta and Jesus, on the other side of the Ebro, and the neighbouring country, where they remained free from the disease which carried off about 5,000 within the walls of Tortosa. †

“On the same occasion the inhabitants of Aseo and Méquinenza, both situated on the Ebro, were also preserved by establishing themselves under tents and olive trees, and though suffering privations, those who were at a distance from the river were not attacked. §

“At Palma, in the island of Minorca, the seat of a terrible epidemic in 1821, had migration not taken place the results would have proved much more calamitous.

“Let us hear what the medical commission, which went to Barcelona, said upon the subject.

“On the 15th September the superior authorities, civil and military, left the town for Valdemosa, a village situated three leagues from Palma. The citizens following their example made a precipitate retreat to the country beyond the walls, and the migration was so considerable that of 32,000, 12,000 only remained. It was necessary to raise funds, secure means of maintenance, and build huts in the open country, and two encampments were formed at the foot of Mount Belver, half a league from Palma.

“All the healthy poor were assembled, all who, for want of work, were starving, and all who had strength removed thither, and thenceforth security was found from the disease;” or, as Dr. Pariset expressed it, they escaped the *contagion*. “The

* Arejula, 4th table in his book.

† Arejula, loc. cit. 5th table.

‡ See petition to the king from the municipality of that city.

§ Histoire Médicale, &c. (Pariset), p. 61.

12,000 who remained in Palma, after the emigration of the rest, had 7,400 sick and 5,341 deaths.” *

“It was calculated that from Barcelona in 1821 about 80,000 persons fled, and, except some who departed with the disease already upon them, or who were on the eve of being attacked, all remained exempt from the reigning malady; † though subjected, as Dr. Lassis well knew, to great privations, for he says, ‘These refugees from Barcelona experienced all sorts of vexations.’ The inhabitants of the neighbourhood, even those of the highest mountains, influenced by the fear of imaginary contagion, adopted precautions of the most arbitrary nature. They might have been seen exercising towards them measures contrary to the most sacred rights of humanity, and, by such conduct, furnished a deplorable example of superstitious ignorance in which the routine of sanitary [*i. e.* quarantine] measures had placed the people.”

“In spite of all the sufferings of the fugitives from Barcelona they remained free from the epidemic. While, from about 70,000 persons in the city, near 10,000 deaths took place.” ‡

“In 1823, when the Yellow Fever broke out at the Port of Passages 3,000 persons took flight, and it was fortunate that this measure limited the deaths there to only 40. §

“On that occasion, as at Barcelona, in 1821, after the flight of the people, a few only, who left the town ill, had the disease.”

On the necessity of migration on the outbreak of Yellow Fever, I will now merely add a few words from the Baron Dupuytren, in his Report to the Academy of Sciences in Paris, 1825.

“We should therefore regard as incontestable the principle which consists of evacuating immediately the places where Yellow Fever is declared to be, and everything for this purpose should be adopted. The utility of such a measure must always justify its rigorous execution.”

QUARANTINE LAWS.

After the details given in the foregoing pages, I am not permitted to doubt, but that those who have followed me through them will have arrived at the conclusion that Quarantine Laws, in reference to Yellow Fever, are not only unnecessary, but cruel and unjust,—often producing great privation and suffering,—frequently, instead of checking the progress of the disease, increasing the number of victims by confining people

* Hist. Med. p. 70.

† Ibid. p. 25.

‡ Ibid. p. 134.

§ Arruti *Tradado de la Fiebre amarilla*, p. 75.

to ships or infected localities on shore, thereby rendering escape from the real source of the disease impossible,—and, finally, acting most injuriously on commercial intercourse. But perhaps I cannot exhibit the necessity for the abrogation of those laws in a stronger light than by giving the following passage from a work on Yellow Fever,* by Dr. Reider, of Vienna, who made this disease his particular study, and, for this purpose, made several voyages to the West Indies and the American Continent, where, like Dr. Chervin, he was enabled to observe every particular characteristic of the disease. He says, p. 106,—

“All these circumstances are calculated to fill with horror the breast of every feeling and honest man; and we are really obliged to offer violence to ourselves in not giving vent to our indignation against the partisans of contagion, who yet desire to continue to defend their erroneous opinions, and who, to this day, have used all their efforts to make obscure and disfigure the subject, to the great detriment of truth;—who have never ceased to deceive governments, which think it their duty, with regard to this disease, to surrender themselves to the judgment and knowledge of medical men,—who have never ceased to describe it as contagious, and have induced those authorities to adopt, with respect to it, the most false and contrary measures, † and to neglect the suitable, prophylactic, and *preservative* means, and others which might have put an end to the disastrous epidemics of this disease;—thus it is they have always acted contrary to truth, to the interest of governments and of humanity.”

In conclusion, I beg to quote the following extract from a document furnished to the American Commission at Albany, 1845, ‡ by Dr. Reece, of New York, who says,—

“I am of opinion that the oppressive features of our Quarantine system should be reckoned among the relics of barbarism which an enlightened Legislature should make haste to abrogate for the sake of our character as a people.

“There is no pretext for the perpetuation of a system founded in ignorance, and fruitful only in public and private injustice, cruelty, and wrong.”

* *Memoire sur la Fievre Jaune*, Vienna, 1828.

† “Twenty-six persons were detained in quarantine of observation at the ‘Venta’ of the Capuchins of Reinteria, for having communicated with Ajarbé, the carpenter, who died there [of yellow fever] on the 31st August, and the time which had been prescribed by the Sanitary Board of Bayonne having expired without any of these persons having been attacked, I consented to their being set at liberty on the 28th September.”—*Andouard, de la Fievre Jaune au port du Passage*, 1823.

‡ *Addenda* (S.), p. 238.

ADDENDA.

LETTER (A.)

That Yellow Fever prevailed to a serious extent in the 48th Regiment, in the autumn of 1798, appears by the following portion of a letter from the late Staff-Surgeon Hill, dated 13th June, 1832:—

“The 48th regiment having returned from the West Indies a complete skeleton, were completed by recruits from the different supplementary corps to the number of 1,100 strong, with which it immediately embarked on board the “Calcutta” Indiaman the 1st September, 1798, at Lymington, and arrived at Gibraltar the following month (October); previously to the regiment embarking there had been a detachment on board, and two or three cases of small pox occurred; the ship had been fumigated and whitewashed, but nevertheless a few cases of small pox were debarked at Gibraltar on the arrival of the regiment at that fortress; in all other respects the men were healthy, although much crowded on board ship, and such was the state of equipment that the men appeared in their different county militia uniforms, not having had time to fit on the proper uniform clothing prior to leaving England.

“Soon after the arrival of the corps at Gibraltar several cases of yellow or bilious remittent fever made their appearance, which increased rapidly and proved highly fatal. Dr. Harness, physician to Lord St. Vincent’s fleet (afterwards one of the Commissioners of the Sick and Hurt Board), declared the fever to be precisely the same he had seen in the West Indies, and requiring the same treatment; indeed the fever was of the same type, but in a more aggravated form than I have repeatedly [since, J. G.] seen during the autumnal months, particularly when it was the bad practice to encamp regiments on the Neutral Ground under pretence of keeping them healthy.

“It is to be remarked that the young recruits were the only sufferers, not an officer having been attacked, most of whom had lately returned from the West Indies, but amongst the subalterns there were several that had never before been out of England.

“The regiment on its arrival was quartered in the King’s bastion, a bomb proof casemate, and not sufficient to properly accommodate half the battalion, the hospitals were equally bad and crowded.

“The other regiments in garrison did not suffer from fever more than usual, and the disease was confined solely to the 48th, and no apprehension or dread was entertained of the fever spreading either amongst the military or civilians, neither were there any precautionary measures resorted to, for in those days the antisocial doctrine of ideal contagion was not in existence.

“ (Signed) WM. HILL,

“ *Deputy Inspector of Hospitals.*”

[*Vide accompanying Plan of Gibraltar.*]

The following list of cities, towns, and villages of Spain, in which Yellow Fever is admitted to have appeared since 1800, may not be uninteresting to the profession; but in many of these places the disease was confined to circumscribed localities where the Sanitary conditions were notoriously defective, and did not extend to the mass of the population.

In Andalusia.

Cadiz.—Built at the extremity of a narrow neck of land, extending about 6½ miles into the sea. Lat. 36. 32. Number of houses 4,020; population 53,500.

- St. Fernando*.—In the Isla de Leon, near Cadiz. Situation low. Population 3,400.
- Puerto de Sta. Maria*.—Situating opposite Cadiz. Low.—Population 17,500.
- Puerto Real*.—In Cadiz Bay, opposite that city. Situation low. Population 5,000.
- Rota*.—On the coast, one league from Puerto Sta. Maria. Population 7,997.
- Chipiona*; lat. 36. 40.—On a rock on the coast, near the mouth of the Guadalquiver, $1\frac{1}{2}$ leagues from San Lucar and 3 from Cadiz. Population 500.
- Ayamonte*; lat. 37. 13.—At the mouth of the Guadiana, near the frontiers of Portugal, in a sterile country. Population 6,300.
- Medina Sidonia*.—In bishopric of Cadiz, and 5 leagues E.S.E. of that city; 4 leagues from the sea. An old town built on a high hill. Population 9,300.
- Vejer*.—In bishopric of Cadiz, on a very high but cultivated hill, at a short distance from the sea, opposite Cape Trafalgar. Population 8,172.
- Los Barrios*.—A small village, situated in the mountains, about 14 miles W. of Gibraltar, on the road to Cadiz.
- Algeciras*.—Situating in the Bay of Gibraltar, and opposite the latter town; little elevated above the level of the sea; behind it are high ranges of mountains. Houses 2,200; population 9,800.
- Gibraltar*; lat. 36. 6. 42.—Population, including military (and comprising the district called South, as well as the territory beyond the walls near Neutral Ground), 22,000.
- Ximena*.—In bishopric of Cadiz, about 20 miles from Gibraltar, in a N.W. direction; situation on a hill. Population 6,000.
- Paterna de la Ribera*.—A small town situating at the foot of the Xerez mountains, in the bishopric of Cadiz. Population 1,500.
- Xerez de la Frontera*; lat. 36. 41.—Four leagues N. W. of Cadiz, on a hill in a fertile country. Population 31,000.
- San Lucar de Barameda*; lat. 36. 47.—At the mouth of the river Guadalquiver; situation low. Population 16,500.
- Arcos de la Frontera*.—Situating on a very high rock, in bishopric of Seville, 10 leagues north of Cadiz. Houses 3,050; population 10,000.
- Villa Martin*.—Archbishopric of Seville, on the river Guadaleta, 13 leagues from Cadiz and 12 from Seville. Population 2,700.
- Espera*.—Archbishopric of Seville; situation low; near a small river which joins the Guadaleta opposite Arcos, 10 leagues from Cadiz. Population 2,900.
- Lebrija*.—Archbishopric of Seville, in a plain 2 leagues from the river Guadalquiver. Population 6,700.
- Utrera*.—Archbishopric of Seville, 2 leagues from Seville; situated between two hills; streets wide and paved. Population 1,105.
- Alcala de Guadaira*.—Archbishopric of Seville; a small town situating on a hill. Population 5,000.
- Seville*; lat. 37. 24.—On river Guadalquiver; situated in an extensive plain, 24 leagues N.N.E. of Cadiz. Houses 12,055; population 100,000.
- Carmona*; lat. 37. 28.—Archbishopric of Seville, on a hill 6 leagues to the E. of that city. Population 18,000.
- Moron*.—Archbishopric of Seville, at the foot of the chain of mountains called Sierra de Ronda, 10 leagues N.E. of Seville. Population 7,500.
- Ecija*; lat. 37. 31.—Archbishopric of Seville, in a plain on the western bank of the Xenil, 6 leagues before its junction with the Guadalquiver, in a fertile country. Population 34,727.
- Antequera*.—In a plain between Grenada and Seville; it is built partly on a rising ground; streets straight and wide; 26 miles N.N.W. of Malaga. Inhabitants 13,000.
- Cordova*; lat. 37. 52.—Situating in a plain near the Sierra Morena, on the river Guadalquiver; distant from the sea 70 miles in a direct line. 46,500 inhabitants.

Montilla.—Archbishopric of Cordova, 6 leagues to the S.E. of that city; situated partly on a hill. Population 12,000.

Espejo.—Archbishopric of Cordova; on a plain on the river Guadajoz, 5 leagues from Cordova.

La Rambla.—A town in the archbishopric of Cordova. Population 7,800.

Corlotta.—Archbishopric of Cordova, 5 leagues S.W. of that city. A large village; population about 2,000; 26 leagues from the sea.

Aguilar.—A town in archbishopric of Cordova. Population 11,000.

Granada.—Situated near the Sierra Nevada mountains, at an elevation above the sea of 927 feet; about 16 leagues from Malaga, and about 31 miles in a direct line from the sea. Population 80,000.

Malaga; lat. 36. 43.—At the base of a range of hills; a very remarkable hill on its eastern side. About 7,000 houses; population 52,000.

Velez Malaga.—Situated at about 14 miles to the E. of Malaga, on the slope of a hill, 2 miles from the sea, on the river Velez. Population 14,000.

Alhaurin.—A small village on an eminence, within a short distance of Malaga. Population about 400.

Churriana.—A small village between Alhaurin and Malaga, situated on an eminence.

Alhaurinejo.—Situated about $1\frac{1}{2}$ league from Malaga; a village.

Vera.—Bishopric of Almeria, situated about 3 miles from the sea, in a plain. Population 8,000.

El Palo.—A village distant about a league to the E. of Malaga.

El Borge.—A small town, bishopric of Malaga. Population 1,200.

Ronda.—Situated in the midst of a range of mountains of that name, at a very great elevation above the sea; distant from Gibraltar 60 miles N. Population about 18,000.

Also *La Carraca*, *Chiclana*, *Las Cabezas*, *Sn. Roque*, *Mairena*, *Estepa*, *Carrana*, *Los Palacios*, *Villafranca*, *El Archal*, *Dos Hermanos*, *Tribujena*, *Bornos*, *Zara*, *Almeria*, and *Ubrique*.

Total number in *Andalusia*, 59.

In Murcia.

Murcia; lat. 37. 58.—Situated on river Segura, 9 leagues N. of Carthagea. Population about 35,000.

Carthagea; lat. 37. 35.—Territory rather unfertile. Population about 30,000.

Jumilla.—Bishopric of Carthagea, 10 leagues from Murcia, at the foot of a hill, 40 miles from the sea and 65 miles N.W. of Carthagea. Population 8,000.

Molina.—A small village, 2 leagues from Murcia, in a plain, on the river Segura. Population about 1,300.

Archena.—Situated 4 leagues N. of Murcia, in a plain at the foot of a range of mountains near river Segura. Population about 800.

Ojós.—Five leagues N. of Murcia, in a narrow valley on the river Segura. Population 300.

Ricota.—Five leagues and a half N. of Murcia, in a plain at the foot of a range of mountains, and distant a quarter of a league from river Segura. Population about 1,000.

Alberca, *Yelar*, *Alcaria*, *Mazarron*, *Las Aguilas*, *Totana*, *Lorea*, *Zicra*, *Villa-nueva*.

Total number in *Murcia*, 16.

In Valencia.

Orihuela; lat. 38. 8.—Situated in a plain, near a range of mountains on river Segura, and distant from the sea 14 miles. Population 25,500.

Guardamar; lat. 38. 15.—A small sea-port, at the mouth of the river Segura. Population about 4,000.

Alicant; lat. 38. 20.—Situated in a fertile country, on the sea-coast. Houses 4,500; population 21,000. At the foot of a high hill.

Penacerrada.—A small village, 1 league from Alicant, consisting of 42 families, 158 inhabitants.

St. Juan.—A small village in the neighbourhood of Alicant.

Elche, Alcantarilla, Palmar, Lebrilla, Albama, Tabarca (a small island).

Total number in *Valencia*, 11.

In Catalonia.

Barcelona; lat. 41. 21.—Situated in a plain, in an extensive bay, having on its western side a remarkable mountain. Houses 19,000; population about 120,000.

Barcelonetta.—Situated near Barcelona, and in the same bay, distant from latter city a quarter of a mile.

Tarragona; lat. 41. 7.—Situated at the mouth of the river Francoli, at an elevation above the sea of 760 feet. Population 11,000.

Tortosa; lat. 40. 48.—Situated on the left bank of the Ebro, 4 leagues distant from the sea. Population 13,000.

Asco.—A small town on the right bank of the Ebro, partly on a hill, 13 leagues from Tortosa. 300 houses; population 1,300.

St. Eloy, Escala, Torreuela.

Total number in *Catalonia*, 8.

In Aragon.

Mequinenza.—Bishopric of Saragossa, at the confluence of the rivers Ebro and Segra; distant from the sea in a direct line 40 miles. Population 1,469.

Nonaspe.—A village near Mequinenza, on the small river Nonaspe. Population about 1,000.

Number in *Aragon*, 2.

In *Old Castile* 1,—*St. Andero*.

In *Guypuscoa* 1,—*Passages*.

Total number of places in Spain, 96.

In the great majority of these places the disease prevailed to a limited extent only.

LETTER (B.)

Copy of a Letter from Dr. Bobadilla to Dr. Gillkrest, November 2, 1829.

“SIR,

“I HAVE received your favour of yesterday’s date, in which you request some details regarding the occurrences in Gibraltar connected with the Yellow Fever which prevailed in the year 1810.

“We were directed by Government to report all suspicious cases; and, agreeably to my duty, I gave in the names to Dr. Pym (whom we had then as chief medical officer) of individuals at three places in the city which I knew of: one of these was in a house opposite the meat market belonging to Mr. Bosehetti; another in the green market, and the third in Bonastero’s-lane, in the house of Mr. Beloty. I reserved my opinion as to the true character of the diseases at the time, leaving that to him to do in preference; but, notwithstanding this, Dr. Pym came to my house at midnight of the same day, in order to obtain my opinion; and I then declared to him that they possessed the characters of the true Yellow Fever, and he immediately took the steps which I judged advisable, and which we had been in the habit of adopting in Spain, by which, *and a north wind which lasted seven days*, and which purified the atmosphere completely, the disease ceased, *as I had foretold Dr. Pym it would, on the first day of the setting in of the wind.*

“I remain yours, &c.,

(Signed) JOAQUIN BOBADILLA.”

“A true copy of the English translation in the possession of Dr. Gillkrest.

HENRY T. MAXTED.”

I think it of importance to notice respecting the Yellow Fever at Gibraltar in 1810, stated by the Superintendent of Quarantine as having been cut short by his having placed "a cordon of troops round the infected part of the South District for fourteen days;" that the spot surrounded by the cordon (see p. 30, Pym's 2nd Edit.) was by no means the only one where Yellow Fever cases appeared, for it is shown by Mr. Amiel, that outside the cordon the wife of Assistant-Surgeon Martin died of the black vomit. Cases also appeared at Cooperage Barracks (then plain, Letter P.), among the 7th Veteran Battalion, besides five or six cases at other points.

LETTER (C.)

Extract from O'Halloran "on the Yellow Fever on the South and East Coasts of Spain." P. 167, et seq.

"There are some points in the work of Dr. Pym, to which I must call the attention of the reader. I am sorry to be under the necessity of doing so, but such palpable errors as appear in his work, on subjects which essentially concern the welfare of mankind, imperiously demand that I speak the truth in the manner in which it has impressed me. Were I not to do so, and to do it without reserve, I should hold myself culpable in the extreme. I am ready to answer, under every possible penalty, for the fundamental correctness of what I state; and I now proceed to state it in as concise a manner as possible, leaving the reader to draw his own conclusions. I am responsible for the fact.

"Dr. Pym, at page 55 of his book, [1st Ed.] alluding to the fever of 1813, which prevailed at Gibraltar, states—'Of 500 persons confined to the dockyard during all the time of the sickness, there was not an instance of one of them being attacked, although this was, of all others, the most likely spot for marsh effluvia to exist, and which, during the fever of 1804, suffered equally with other places, in consequence of the communication not having been cut off.'

"[At page 139] 'The labourers belonging to the naval works have been kept in strict quarantine in the dockyard, very near the spot where the disease showed itself in 1810, and if there is a situation in Gibraltar favourable to the generation of marsh miasmata it is there; and in 1804, it shared the fate of the other parts of the garrison; yet those people this year have continued healthy, as well as another party of inhabitants, who established themselves in Camp Bay, and cut off all communication with the infected.'

Dr. O'Halloran observes—

"The perusal of the foregoing quotations in the work of Dr. Pym struck me forcibly on my arrival at Gibraltar in the present year. I thought the immunity of the dockyard from fever in the year 1813 a singular circumstance, and one which strongly operated against the doctrine which I am inclined to embrace. I had not doubted the assertions of Dr. Pym and Mr. [W. W.] Fraser; for, from their rank in the service, the one being at the head of the Health Office in London, and the other at the head of the Medical Department in Gibraltar, it was reasonable to expect information of authenticity, for their opportunities of attaining it exceeded that of others. It happened, however, by accident, that a medical gentleman, who saw the epidemic of 1813, observed, in the course of conversation, that fever prevailed to some extent in the dockyard of that year; and that, by an application to Mr. Buck, who was secluded with the others, and who is now the superintending officer in charge of the establishment, particular and authentic information might be obtained on the subject.

"I applied to Mr. Buck, and the information which I have obtained from him and his head clerk is the following; it may be depended upon as officially correct.

"An order was issued on the 18th of September, 1813, for preventing intercourse between the dockyard men and the inhabitants of Gibraltar.

'The whole of the officers and clerks are hereby directed to repair to the

yard this evening, as all communication will cease with the garrison at daylight to-morrow morning.

(Signed) PERCY FRASER, *Commissioner.*'

To the respective Officers.

“DEATHS and CASES in the DOCKYARD at GIBRALTAR, in the Autumn of 1813, from the 18th of September, to the 23rd of December. Taken from the books.

“*Deaths.*

- “1. Marion Thomas, shipwright, sent to the lazaretto, where he died.
- “2. The sister of Mr. Pontez, a sawyer, died on the 20th of September, in the boat-house loft. This woman was supposed to have introduced the disease.
- “3. Antonio Mattas, (date not mentioned), died of a very short illness in the boat-house. Hæmorrhages from the nose, mouth, &c., preceded his death.
- “4. Mrs. Hamlyn, died in the block store.
- “5. Juan Mirobas, died 24th of September, on the careening wharf.
- “6. Francis Guero, labourer, died 6th of October.
- “7. Antonio Sowsa, died 20th of October.
- “8. Herbert's child, died on the sail-loft on the 20th of October.

“*Sick.*

“William Walker Harder; Samuel Fursman; William Bernard; Robert Monk; William Betts, sent to lazaretto; William Aneel; William Whitehead; Patrick Thoneo; Joseph Caprella; Rafael Pons; Antonio Fiel; Mrs. Canter; William Salmon; Robert Newman; Mrs. Denham; Diego Dalmuda.”

“The communication between the sick and healthy was uninterrupted. The number of persons secluded, according to Mr. Buck's account, who examined the books in my presence, amounted to 170. Dr. Pym makes it 500.

“The people of the dockyard were released from quarantine on the 24th of December, 1813.

“The above list of deaths, sick, &c., in the dockyard at Gibraltar, during the period alluded to, is, (I blush to say, for the honour of the profession) authentic.* The fact cannot be doubted, and the truth of it might have been, it is presumed, ascertained by referring to almost any insignificant individual now in the dock, yard. The impressions which are made upon those who are present in the lamentable scenes of sickness, the perpetual dread of the impending attack, the solicitude to avoid it, and the impossibility of avoiding it, as confined within a narrow barrier, may be supposed to have left traces in the memory which are not soon obliterated. It, therefore, could not have been difficult for this head of the medical department to have satisfied himself of the actual fact, in a range so limited as that of Gibraltar; and thus to have saved his own mortification, and the public evil that may have arisen from his erroneous report. I cannot divine how the error alluded to can be explained, or what can be adduced in extenuation of a mistake so palpably flagrant as this.† The evidence now given is conclusive against the truth of the assertion of Dr. Pym; and the careless-

* The dockyard authorities conclude a certificate given to Dr. O'Halloran, 29th August, 1823, “The truth of the assertion as to deaths having taken place there cannot be doubted, and the list of sick which you have given falls far short of the number affected; but the dread of being sent to the Lazaretto, and being separated from their friends and relations, caused the sufferers to conceal the disease in many instances.”

† To my utter astonishment I found this statement repeated in the second edition of Sir W. Pym's work (p.34), printed in 1848, though he had been twice in Gibraltar after the error had been thus publicly exposed.

ness with which he made such report, or the motive which induced him so to modify an important fact, that it has no resemblance to truth, cannot fail to meet with reprobation from honest men, whatever be the doctrines which they adopt. It does not belong to me to seek for excuses for other men's errors or oversights; but it may probably be suggested, that the dockyard was not within the control of the military commander, and that this was the cause that the statement was incorrect. This excuse, I may add, if such be made, would not be valid, for some of the sick at least were accommodated in the lazaretto, which was under superintendence, whether they recovered or died."

LETTER (D).

Extract from a Letter from Dr. Gillkrest to Dr. Hennen, 4th September, 1828, as to the origin of the Gibraltar Epidemic.

"As far as human judgment can go, I think that at least a high degree of probability arises out of the evidence, such as I have heard it stated, respecting *the drains*; but, on a question where so much difference of opinion has always existed, it may be well not to leave the question [of its being *imported* by a certain ship] entirely unheeded: and as all such points become matters of history, I may perhaps be excused by you for suggesting, if you have not quite made up your mind, that a medical inquiry of a formal nature should be instituted; I may add, this seems to be the opinion of others."

Extract from a Letter from Dr. Smith to Dr. Hennen, on the same subject.

"At the same time I cannot help thinking if there is the slightest foundation for this belief [in the *importation* of the disease by the Swedish ship 'Dygdén,'] it merits the most serious consideration, and before determining on the origin and nature of the present epidemic, if I may yet call it so, the most minute and impartial investigation ought to be instituted on this important subject. On the decision of this question depends, in a chief degree, the nature of the means which it may be considered advisable to recommend for eradicating the disease, as well as the chance of safety which it holds out to the healthy by a timely and efficient separation from the infected."

LETTER (E).

Copy of a Letter from Dr. Hennen, Inspector-General of Hospitals, to Sir George Don, on the appearance of the first cases of the Epidemic.

"Inspector's Office, Gibraltar,
August 29, 1828. 9 o'Clock, A.M.

"SIR,

"IN reference to my letter of this day's date, I have now the honour to inform your Excellency that I have minutely inspected District No. 24, in company with Mr. Wilson of the Civil Hospital, Mr. Woods, the medical officer attached to that district, and other staff officers, and it is with much regret I have to state to your Excellency, that in almost every step I took in that district, I had reason for surprise, not that fever had broken out there, but that it had not extended farther.

"It would lead me into matters not immediately connected with professional points, were I to enlarge upon all I have seen and heard during my inspection of that district, but the conclusions to which I am irresistibly led are as follows:—and I beg to claim your Excellency's special attention to them, as the only means for preventing a repetition of those horrors which occurred in this garrison at the period of your Excellency's happy arrival in 1814.

“ From whatever causes it may have proceeded, the pauper population is dense to a degree incredible, except to those who have seen it. In sheds, without ventilation, without drainage, and generally composed of the slightest materials, in tiers of beds, as close as in a crowded transport, numerous individuals sleep. They go to their work at an early hour, and return at gun-fire, locking up their miserable places of nocturnal shelter during the day, and leaving them saturated with the steams of their bedding, their food, and the overflowing receptacles of their ordure. The detail would be too disgusting to be entered into, but I most respectfully submit to your Excellency the indispensable necessity of sweeping [away] the whole of those sheds, which I have every reason to suppose are unauthorized by the Government, and are solely the offspring of the most sordid avarice; so confident have been the owners of these sheds at their permanence, that some of them are actually covered with sheet iron, a measure which, while it may tend to put money into the pockets of the owners, by preserving the wretched sheds, must especially conduce to render these places hothouses of contagion.

“ Might I presume to offer my opinion, a committee of civilians, military and medical officers, should be immediately appointed to inquire into the state of all the temporary buildings through the garrison, and if they are deemed incompetent for the purpose of human accommodation, and with a risk to public health, that they may be forthwith razed to the ground, as I understand many of them have heretofore been, although subsequently from increased demand on the part of the lower orders, for shelter, they have sprung up with incredible rapidity, contrary to the spirit of those admirable police regulations which were laid down by your Excellency.

“ Although my recent observations have led me to a positive conclusion with regard to the state of the District No. 24, I cannot doubt that all the other districts are comparatively in a similar state.

“ 2nd. Without wishing to implicate any individual in the charge of neglect of duty, I would suggest that the police serjeants of districts should receive the most positive orders to attend especially to the duties connected with the cleanliness of the places committed to their care. On this subject I shall only say, that a most respectable medical officer has stated to me, that he rarely sees a police serjeant perambulating his bounds, and in truth the veracity of his assertion was confirmed to me by more senses than one. Under this head I may mention that I had repeated evidence, that your Excellency's orders, with regard to placing barrels, baskets, &c., for the reception of dirt, in commodious situations, for removal by the scavenger, appear in many cases to have been altogether neglected.

“ I shall feel it both a duty and a pleasure to accompany any committee that your Excellency may think proper to appoint, to examine into the multiplied causes which at present threaten the public health. I shall lose no opportunity of visiting every part of this garrison, and shall report to your Excellency every circumstance which, in my opinion, may tend to the preservation of the public health.

“ (Signed)

J. HENNEN, M.D.

“ *Inspector of Hospitals.*”

In his official report for the year 1826, p. 145, Dr. Hennen, speaking of the Epidemic of 1814, says,—

“ These cases first appeared on the hill side, considerably above the old nidus of fever (Boyd's Buildings,) many of them occurred at Cavallero's Buildings, situated close to Arengo's Gully, they lie about the highest of any houses on the Rock, but are now in a very different state to what they were in 1814. At that period Cavallero's rivalled Boyd's for filth, there were neither drains nor necessaries, and the inhabitants consisted of nearly 300 of the lowest order of Portuguese; at the distance of about 150 paces was established the *grand depôt* of the garrison filth, the stench of which was intolerable, and the swarms of flies that infested the whole neighbourhood almost exceeded belief.” Mentioning other points with regard to this part of the town, he adds, “ can we then wonder at the appearance of fever here ?”

LETTER (F.)

The following statement was furnished to T. Jones Howell, Esq., by the late W. Sweetland, Esq.

“ *Memorandum relative to the Swedish Ship ‘Dygdén,’ H. G. Gerle, Master.* ”

“ This vessel arrived here from Havana on the 28th of June last, after a passage of forty-seven days. She was partly, perhaps one-third, laden only, and had nothing on board but sugar and logwood. She sailed with a crew of sixteen persons, including the captain, all in good health. On the 27th of May a seaman died, and on the 1st of June another, being fifteen and nineteen days after her departure. The clothes and bedding of these persons were thrown overboard with the bodies. The disease of which the men died did not extend itself to any other of the crew, who all continued healthy up to the time of her arrival, which, as above stated, was on the 28th of June, consequently twenty-seven days had elapsed from the day of the last death to that of her anchoring here.

“ The ship was visited by Dr. Hennen, the officiating Inspector of Health, who made every necessary inquiry respecting the state of health of the crew, and satisfied himself there was nothing whatever to mark her case beyond that of any ordinary arrival from the West Indies, and she was accordingly placed under a quarantine of forty days, being the period fixed by Proclamation for ships on board which deaths have occurred from fever, and whenever such are not occasioned by accident or by violent means, it is always assumed that fever is the cause of them.

“ Soon after the ‘Dygdén’s’ arrival it was written from hence to Spain, and also, as I have been informed, to Italy, that she arrived with the Yellow Fever on board, and had lost several men from that cause, in consequence of which information the government of Alicant extended the quarantine on Gibraltar from eight to sixteen days.

“ The knowledge of these and other circumstances induced me to put Dr. Hennen on his guard against the omission of any little form, and in consequence the Doctor regularly paid a visit to the ‘Dygdén’ whenever his duties called him afloat. Nothing occurring to excite suspicion of her being unhealthy, at the expiration of twenty days, as directed by the law, the ship was permitted to commence the discharge of her cargo. Two Health Guards were placed on board, under whose superintendence the linen, and clothes, beds, and sails were aired every day, that is, a part of them each day; and the ship and crew fumigated twice. Her quarantine expired on the 6th of August; she was released, and sailed on the 12th of that month bound to Cadiz.

“ The injurious reports by which the ‘Dygdén’ had been assailed during her stay here, had preceded her to Cadiz, where she was refused admittance, by reason, as I was informed, of her having lost men while under the performance of quarantine in this Bay; nor was the impediment removed but by the production of a certificate from hence in contradiction of the report.

“ It was then stated, that the cause of the refusal of the government of Cadiz to admit the ship was, that she had arrived there in a sickly state. To this was opposed an official certificate from thence of the perfect state of health on board her at that period.

“ It may, perhaps, be unnecessary to record any of the minor reports which were propagated to the prejudice of this unfortunate ship; suffice it to say, the greater part of them were contradicted, by those even who were said to be the authors of them; and many were so exceedingly absurd as to need no refutation. People, I imagined, were tired of the subject, and many days passed without my having heard anything about it.

“ About the latter end of August, or very early part of September, a fever appeared in the upper part of the town, as was said, near a drain, which was

stated to be choked and to emit a pestiferous stench, declared by the principal medical officer to be quite sufficient to induce such a disease without other agency, and this opinion was espoused by many gentlemen supposed to be very capable of judging of its probability. The general belief was, however, that the disease had not originated here, and this doctrine was taken up by the whole mass of the population, and facts were eagerly sought for to demonstrate the importation of the fever.

"It was now whispered about, that six men had died on board the 'Dygdén' during the performance of her quarantine; that one of the Health Guards, on landing from the ship, had carried the fever to his house, which was situated in the infected district, where he had died; and that his sister, who had washed his linen, was lying at the point of death under an attack of the same disease. These persons being perfectly well known in the town, their appearance was a sufficient contradiction of the tale.

"It was next stated, that a woman who had washed the captain's linen had been one of the earliest victims to the pestilence, and that she, and not the sister of the Health Guard, had washed the clothes of the latter. This story obtained credit for a time.

"It was, I think, nearly a month after the first appearance of the epidemic, that the Health Guard here spoken of was attacked by it; his case was among the worst which had occurred; he considered himself, and was so considered by his medical attendant, to be on his death-bed, and under that impression he made a declaration to this effect, viz. :—

"That on going on board the 'Dygdén' he and his companion found the crew to consist of fourteen persons, the master included, all in perfect health. That they were most particular in the observance of their instructions by reason of two men having died on board [on the voyage]; causing the sails to be loosed and aired, and the clothes of the captain and crew to be aired every day during their stay, which was eleven days, causing the hammocks and clothes of the seamen to be washed. The most perfect health was enjoyed by every one, the men attending every day at work, and at meals eating heartily. That they caused the ship to be fumigated twice, together with the captain and crew. That he, the declarant, landed on the 6th of August, and the captain having expressed a wish to buy some neckerchiefs, he accompanied him to a shop where the purchase was made, and from whence the said neckerchiefs were taken to the Health Guard's house, and made by his sister, who lived with him. And he concludes his statement by a declaration that the woman who had washed his clothes was in good health, and lodged near him in the Civil Camp, from whence his declaration is dated.

"The above statement was confirmed in all its parts by the Health Guard on his recovery, fully corroborated by his companion; and this very important fact stated by both, 'That it was the custom on board the 'Dygdén' for the crew to wash their linen twice a week, and that the captain had a handy servant, who not only washed but even ironed his linen; that he had no linen washed here, and when asked if he wished a laundress declined having one, saying he would have his linen washed in Cadiz, where washing was cheaper;' so that there can be no doubt of his not having had any clothes washed in Gibraltar.

"A gentleman having told me that he had reason to believe one of the Health Guards on board the 'Dygdén' had said that the captain had told him that all his crew had been attacked at the Havana by a fever called the 'Dengue Fever.'

"He explained, on being questioned, that the captain had told him of the existence of such a fever in that city, which was very general, lasting four or five days, and then passing away without killing the patient, but that none of his crew had been attacked by it.

"I know not what new ground of attack is preparing, but it certainly is not abandoned, though at present the proof of introduction by the 'Dygdén' is, it would seem, rested on the declaration that fever issued out of the sugar boxes on their being opened here; whether any of them were so or not is more than

I can say, or if the Yellow Fever can be packed up and let out of a box of sugar. My opinion, founded on long experience, is, that the disease we are cursed with is not the Yellow Fever, but that which we had here in 1804, 1810, 1813, and 1814.

"Gibraltar, the 10th of November 1828.

(Signed)

"WM. SWEETLAND."

Translation of the Bill of Health of the Ship "Dygdén."

"We, the members of the Board of Health, Don Antonio Gaston y Navarretti, Knight of the Royal Military Order of St. Hermenegildo, wearing the crosses of distinction of the Marine and Chilana, Captain of a frigate in the Royal Navy, and likewise of this Port, by his Majesty's nomination; Doctor Ciriaco de Arango, deputed chief magistrate by the most excellent Senate; and Doctor Don Lorenzo Hernandez, Physician, Honorary Consulter of the Royal Armies, and first Physician President of the Royal Medical Council of this always most faithful city of St. Christopher of the Havana, and ever loyal island of Cuba—

"Do hereby certify, that by the grace of God our Lord, at the sailing from this Port for that of Gibraltar, of the Swedish ship "Dygdén," Captain Gerle, this city and its neighbouring towns are free from all plague or contagious epidemic disease, as likewise the said captain with the fifteen men of his crew, are in a state of perfect health, according to the muster by her roll, and in compliance with the last order, we give the present Bill of Health.*

(Signed)

CIRIACO DE ARANGO,

ANTONIO GASTON,

DR. LORENZO HERNANDEZ."

Havana, May 9, 1828.

LETTER (G).

Replies of several Medical Officers to some of the Queries sent out from the Army Medical Department in London, after the termination of the Epidemic of 1828 at Gibraltar.

STAFF-SURGEON DOW, BREVET DEPUTY-INSPECTOR OF HOSPITALS.

"Do you consider this disease as originating in Gibraltar, or as an imported disease? State the facts on which your opinion is founded.

"I consider this disease as originating in Gibraltar. [Does not give the facts upon which this opinion is grounded.]

"In what respects does the late epidemic differ from the bilious remittent fever of the same place at certain seasons of the year?"

"The principal difference between the late epidemic and the bilious remittent of the same place, appears from the remissions of the latter disease, and in the greater severity and rapidity with which the symptoms in the former run their progress, especially with reference to its fatal tendency.

"Do you consider the disease contagious, i. e. propagated by contact, and did the very latest cases appear to have been contagious?"

"I know of no well-authenticated case of this disease being propagated by contact.

* It is to be observed, that by reference to old Bills of Health, in the possession of the Captain of the Port of Gibraltar, whenever cases of Yellow Fever appeared casually at the Havanah, the circumstance had been invariably stated on the back, and the Members of the Board saw that on the Bill of Health of the "Dygdén" there was no such note; so that this document proved not only that the Yellow Fever did not reign epidemically at the Havanah, but that no cases occurred sporadically when the "Dygdén" lay there.

“Do you consider the disease epidemic, propagated by the general vitiation of the atmosphere of the Rock?”

“I consider the disease to have been propagated through the general vitiation of the atmosphere of the Rock, because the disease did not attack the inhabitants who sought refuge on board ship and on the Neutral Ground. The atmosphere of a sick room is not exempt from the general vitiation, at the same time I do not deny that in crowded, filthy, ill-ventilated apartments, persons are much more liable to be attacked with fever than they would be in clean, thoroughly-ventilated apartments, even should the latter contain sick people. I also consider the higher parts of a situation no security, provided the means of ventilation and of cleanliness are proportionably deficient.

“Had malaria or the effluvia from marshy places any, and what, influence in the production of this disease?”

“I do not think the effluvia from the marshy places of the coast, in the vicinity of the Rock, had any influence in the production of the late epidemic.

“What were the sequela of this disease; visceral obstructions, ague, &c.?”

“Hepatic derangement and general debility causing protracted convalescence, have been noticed as the most frequent sequela of this disease.

“Were other acute diseases observable during the epidemic,—particularly intermittent fever?”

“I did not observe any case of intermittent fever during the epidemic; and a few cases of dysentery and diarrhoea appear to have been admitted into the 94th Hospital during the early part of the epidemic.”

STAFF SURGEON DIX, DATED GIBRALTAR, 1829.

“What was the state of the public sewers, and was any marked difference observed in the cleanliness or filth of the streets, houses, &c.—Report at large on this subject.”

“The state of the public sewers has been in a state of progressive improvement for some years, and no cause of sickness appeared in them, which did not exist in former years; though I suppose that the sewers do in some measure tend to a general vitiation of the atmosphere, as some of these leading from the upper roads, are, I believe, very near the surface, and from the long absence of rain, at the period fever takes place, are nearly choked. Moreover, I have been told by the Surveyor of Revenue Works, that many of them are not carried out to low-water mark on the line wall. In the state of the streets or houses, I am not aware that any cause existed which was not present in the same, or in a worse degree in former years.”

On the subject of sporadics, Mr. Dix says—

“I only saw ten or twelve cases of the late epidemic; but those appeared to me to differ, in no respect, from bad sporadic cases of Yellow Fever I had witnessed here annually from 1820 to 1826.”

“Do you consider the disease epidemic, propagated by the general vitiation of the atmosphere of the Rock?”

“Yes, epidemic: and propagated by general vitiation of the air of the Rock; because any one, not having passed it, was almost sure to take it if they ventured to sleep in town.

“Had malaria, or the effluvia from marshy places, any, and what influence in the production of this disease?”

“Malaria, I suppose to have given origin to this disease.”

SURGEON M'LEOD, 42ND REGIMENT, DATED APRIL 16, 1829.

“Do you consider the disease contagious, i. e. propagated by contact, and did the very latest cases appear to have been contagious?”

“I never, in any instance, knew the disease to have been communicated from one person to another.”

ASSISTANT-SURGEON BULTEEL, 94TH REGIMENT.

“Were you ever in the West Indies or Gibraltar, and have you in either place or elsewhere witnessed a similar visitation of sickness?”

“ I have never been in the West Indies, but at all the different stations on the western coast of Africa, and have witnessed a similar visitation of sickness.

“ *Do you consider this disease as originating in Gibraltar, or as an imported disease? State the facts on which your opinion is founded.*

“ Having no facts to elucidate from my own personal knowledge, relative to the origin of the disease, and not being able to discover any of its being contagious, I am naturally led to conclude that it is of local origin, from the great heat and drought, the former being greater than what I have experienced in Africa, and the lofty situation of the Rock impeding ventilation when an easterly wind prevails, [a fog or cloud] covering its summit and approaching to its base, causing febrile exhalations, which, on my arrival here, were prevalent and long continued: I evidenced the mitigation of the epidemic in November, and the visible improvement in the worst cases on the approach of a westerly wind, which was only for a short time, when an easterly re-appeared.

“ *Do you consider the disease contagious, i. e. propagated by contact, and did the very latest cases appear to have been contagious?*

“ I do not consider the disease to be contagious; out of the number of orderlies, who were in constant attendance upon the sick, and necessarily subject to the most unpleasant effluvia, only *one* took the disease and recovered, which I attributed to bodily fatigue and watching, together with a recent fit of intoxication; and, on my arrival, a number of men affected with other diseases who were sleeping in the same wards with the fever cases, and attending upon the sick, escaped the disease, the former of whom I of course removed into a detached ward; and an orderly of the 94th Regiment, at the Naval Hospital, who it has been stated caught the disease, while in attendance on the sick on the 6th September last; from the man's own statement, he had been in No. 24 District, in company with a serjeant of the 12th Regiment, who also took the disease; therefore, from these strong examples, I form my opinion. Another very strong example is, that the officers used constantly to accompany me around the wards to visit the sick of their own companies, and also two of their brother officers who were seriously ill with the disease, and were in the habit of shaking hands with them; I can positively assert that not one of them took the disease.

“ *Do you consider the disease epidemic, propagated by the general vitiation of the atmosphere of the Rock?*

“ I do consider the disease epidemic, from the men most invariably having been taken ill when on guard, or after having been in town, where the vitiation was much greater; but I know an instance of one man who was serving as cook to the Grenadier Company, who never was out of camp at Windmill Hill during the epidemic, but was at the canteen with a number of other men, when it was stated that there was a boy ill with the disease in the adjoining room. The man himself states, that he did not go near the patient; he, however, was taken ill after a fit of intoxication, being generally a man of sober habits. I can also state, from good authority, of a girl having been affected with the epidemic at the Signal Tower, who never had any communication with the town.*”

ASSISTANT-SURGEON BROWNE, OF THE 23RD REGIMENT. DATED APRIL, 1829.

“ *What was the state of the public sewers, and was any marked difference observed in the cleanliness or filth of the streets, houses, &c.? Report at large on this subject.*

“ I was not in the garrison at the commencement of the late epidemic, and cannot say. But goes on to state some remarkable proofs from official authorities that the sewers were in a bad state.

“ *Do you consider this disease as originating in Gibraltar, or as an imported disease? State the facts on which your opinion is founded.*

* This authority rendered quite null from investigations of Dr. Chervin, as related in one of his works.

“ I consider the late epidemic fever, as originating in Gibraltar, for the following reasons ; viz., 1st. Because I know of no proof of its importation, and because, when it has been imported into other places, even on a large scale, no epidemic has been produced in consequence. 2nd. From the non-communication of the disease by patients labouring under it, by convalescents from it, or by any articles used by the sick, when such patients, convalescents, or fomites, had been removed beyond the local source of infection, which in the late epidemic, was the case on the Neutral Ground, Windmill Hill, and Europa Flats ; no person in any of these situations, having contracted the disease, from coming in contact with patients, convalescents, or their dirty clothing, &c. I am aware that a few individuals, amounting, perhaps, to 15 or 20, sickened in these situations, without having been known to enter the garrison ; but, at the same time, it is an established fact that fevers of a highly aggravated nature, are contracted annually in the first of these localities, which furnished at least three-fourths of the total number of such cases ; and, while numerous instances are to be found, where women, (soldiers’ wives) living in camp in these places, washed the dirty linen, &c., of fever patients, without injury, is it to be credited that a little black vomit on the skirt of a coat caused the disease ? I may cite the exposure of the orderlies, and patients in the Naval Hospital for other diseases ; in proof of this position, not one of whom contracted the epidemic fever, until it had previously appeared among the civilians, in the immediate vicinity, who had no intercourse whatever with the sick, and were in general extremely anxious to avoid coming near them. 3rd. From the disease being epidemic in autumn, or rather during the last six months of the year only, a season so notorious for the production of fevers from malaria, and also from its being like them, checked suddenly by a reduction of temperature, so inconsiderable as not to influence other diseases reputed contagious. 4th. From the peculiar severity of the disease as contracted in certain localities, showing thereby a difference in the concentration or virulence of the cause in these situations, a fact generally observed in the fevers from malaria, and so very different from the usual operation of contagion, especially, as these places are often far from being either the most crowded and filthy, or even the worst ventilated. In proof of what is here asserted, I may mention the highly aggravated nature of the cases admitted into the Military Hospital from North Flat Bastion, Southport, and Convent Guards, which were furnished at an early part of the epidemic, chiefly by the 43rd regiment, and also the very great mortality among the men employed in the cultivation of Rouvier’s and the adjoining garden in the south. 5thly. From Yellow Fever never appearing in an epidemic form, in any situation, where sporadic cases of the same disease do not occur ; such cases demonstrating the existence of the local cause, though its operation may be limited by circumstances, unknown to us, influencing the production or propagation of malaria. That sporadic cases of Yellow Fever occur in this garrison, nearly every year, is a fact beyond dispute, for the difference of duration supposed by some to distinguish them from the epidemic disease, is a natural consequence of a cause less extended and probably less active, and after all it is a difference purely supposititious, as very many cases in the late visitation were equally protracted. The test of immunity from second attack, is also in favour of the identity of the disease, in the great majority of instances. It is said that sporadic cases of variola occur, without being followed by an epidemic, and so also may cases of Yellow Fever, but I know of no instance of such sporadic cases of variola, appearing annually in certain situations, differing only in number in different years ; nor of epidemic variola, losing uniformly its contagious quality, when a subject labouring under it is removed from a certain locality. 6thly. From the frequency of relapses in the late epidemic, nearly one-fifth of the cases which occurred in the regiment (23rd) having suffered from a second attack, and one or two even from a third. This fact is out of all analogy with any known contagious disease, such as small-pox, measles, scarlet fever, plague, or even typhus, the contagion of which last is much more doubtful. 7thly. From the almost

total disappearance of every other acute disease from the garrison, during the prevalence of the late epidemic, an occurrence not to be observed in any epidemic of a contagious nature, such as small-pox, measles, &c.; these diseases prevailing often simultaneously, and without exerting any evident influence on the propagation of each other mutually; a proof that the epidemic Yellow Fever, proceeds from a local vitiation of the atmosphere, while the small-pox, &c., depend, in a measure, upon a specific contagion for their propagation. 8thly. From Yellow Fever being confined within certain parallels of latitude, and under certain altitudes within these parallels, and also for its attacking emigrants from northern climates, or healthy districts, with greater severity than the inhabitants of the places where it prevails, or persons acclimatés, peculiarities in which it coincides most strikingly with the more concentrated forms of the fevers of malaria. I need scarcely say, that the British troops in Lieria, (Portugal,) in 1827, suffered from remittents in a trifling ratio to the inhabitants of that place, and thousands of similar instances may be adduced. 9thly. From Yellow Fever attacking, in some epidemics, three individuals in the lower floor of a house or barrack, for one in the upper story. It was observed by assistant-surgeons Brown, of the 43rd, and Gillice of the 12th regiment, that the orderlies and others, who slept in the lower wards of the Naval Hospital, during the late epidemic, were generally attacked sooner than those who slept in the upper wards, beside the sick. In Bosano's family at Rosia, every individual susceptible, eight in number, in the upper story escaped the disease; while every person in Belasco's family, living directly under them, who had not already passed the disease, was attacked. 10thly. From the failure of all attempts to communicate the disease by inoculation with blood, black vomit, saliva, &c., or by swallowing these fluids; and from the inutility of fumigation, expurgation, and every other "sanitary" measure whatever, excepting the removal of the inhabitants from the particular locality, in arresting the progress, or diminishing the mortality of the disease.

"In what respects does the late epidemic differ from the bilious remittent fever of the same place, at certain seasons of the year?"

"Bilious remittent fever, properly so called, is not a common disease in Gibraltar, and the cases of it occasionally seen in the hospital, are generally to be traced to the Neutral Ground; but the common continued autumnal fever of the garrison does not differ in any respect, from the majority of mild cases of the late epidemic. In the autumnal continued, instances are not uncommon in which death took place from the 2nd to the 7th day, and the cases generally either terminate in convalescence or in death, or become distinctly remittent or intermittent from the 7th to the 14th day; in point of duration, therefore, the difference between the fever of ordinary years and the late epidemic, is much more fanciful than real, in as far as my very limited knowledge of the subject enables me to judge. The peculiar appearance of the eyes, the nature and seat of the headache; and the want of remissions, are symptoms common to both, though more generally present, and better marked in the epidemic disease. The appearance of the yellow skin, black vomit, dark and black stools, and hemorrhages, are rare in ordinary years, but taking 1826 as an example, nearly thirty such cases are said to have occurred in the military and civil hospitals, exclusive of those of the ordnance, and 64th regiment, in the last of which several cases are said to have been treated. I do not affirm that black vomit presented itself in all these cases, but a few of them had that symptom, several had dark stools, and all of them yellow skin, while the number of fever cases in the returns of the 12th, 43rd, and 94th regiments quartered in the South, prove to demonstration, an unusual prevalence of that disease among them, as compared with the 42nd, quartered at Windmill Hill, or even with the 23rd, quartered in the town. I conceive that this extraordinary prevalence of a fever in the south district, the importation of which was never dreamt of, and when the symptoms of yellow skin and black vomit were frequent in the garrison, beyond proportion as compared with this disease in ordinary years, will form, like 1810, one of a series in the progression of fevers originating in

Gibraltar, of which the yellow malignant pestilential is the last and most aggravated. The only difference between the epidemic and the autumnal continued fevers of the garrison, are the epidemic prevalence;—the more frequent occurrence of yellowness, hemorrhages, black vomit, and dark or black stools;—the far greater proportional mortality; and the much less tendency of the former to terminate in a remittent or intermittent form after the fifth or seventh day. The great frequency of pulse, and heat of skin, are symptoms common to the autumnal continued, and the epidemic disease, but they are by no means peculiar to the latter, as the pulse not unfrequently beats from 45 to 90, especially in cases where delirium, or a degree of stupor, set in early in the disease, and the heat of skin is often moderate, and in the fatal cases, generally much reduced for several hours (sometimes 48) before death. The most uniform *post mortem* appearance, namely, change of colour in the liver, is found in both, as, also, the dark coloured spots round the cardia, so frequently supposed to be gangrene of the stomach. I have avoided contrasting the epidemic with bilious remittent, because the last disease is rare in the garrison, but it is necessary to observe, that the pale yellow colour of the eye and skin, (said to be peculiar to the epidemic,) vibices, hæmorrhages, the presence of black vomit in the stomach after death, and its ejection during life, have also been described in epidemics of a remittent type in Italy, Switzerland, and elsewhere in Europe, as also in the East Indies.

“*What are the diagnostic symptoms?*”

—“In answering the preceding question I have noticed the chief distinctions between the epidemic and common continued fevers of Gibraltar; and I need scarcely observe, that the supposition of the sporadic cases which appear annually in the garrison, being either cases of hepatitis or icterus, is not within the scope of credibility.

“*Do you consider the disease contagious, i. e., propagated by contact, and did the very latest cases appear to have been contagious?*”

“I know of no evidence of the disease having been propagated by contact; as the child sleeping in the same bed with the father or mother labouring under the epidemic often escaped it, and some individuals who had attended all the other members of a large family were equally fortunate. It was rarely that two soldiers in the 23rd Regiment were admitted from the same tent within a month, and an example is scarce to be found where this happened within a week, and in no instance, without the second person attacked having mounted a guard in the interim. Married men often passed the first night after their attacks in the same tent with their wives and families; and I know of no instance among the military where any bad effects followed this want of precaution. In short, no evident relation could be traced between the first introduction of sickness into a house and its after progress through the family, some weeks, and even two months, intervening in many instances between the first and second cases in the same house, so long as the disease was not general around; but as soon as it became frequent in the vicinity, all the other members of the family, hitherto healthy, often sickened in a few days. The instances are very numerous, on the contrary, where the individuals of a family sickened in rapid succession within the sphere of epidemic influence; but this is more peculiarly a consequence of a general vitiation of the atmosphere than of a contagious quality in a disease, and proves little for either side of the question. The very latest cases did not seem to vary from the rest by seeming to possess any contagious property.

“*Do you consider the disease infectious, i. e., propagated by the infected atmosphere of a sick room?*”

“It may be stated as a fact, that the atmosphere of a sick room does not communicate the disease with greater facility than the general atmosphere of the districts where the epidemic prevails; and, out of these districts, the disease is no longer epidemic, nor is it anywhere transmissible. This inference, in my opinion, is warranted from the persons who went to St. Roque and elsewhere, and sickened there, not having affected the health of their immediate attendants;

from those who sickened in the military and civil encampments, having, in no instance, propagated the disease; and from the orderlies in the Naval Hospital having remained unaffected until the inhabitants of the adjoining houses were already attacked with the epidemic. It is necessary to remark, that the attacks of the orderlies in the Ordnance Hospital, and of a nurse in the Civil Hospital, are said to be exceptions to what is here stated; but the facts with regard to the former, in so far as I know, are defective in many points absolutely essential to determine the question; and the nurse was in the habit of visiting her husband, a soldier of the 23rd Regiment, when he was on duty in the town, and was with him at South Port guard a short time before her attack; she also frequented a lodging-house in the lower part of 24 District, occupied by a serjeant's wife of the 12th Regiment.

“Do you consider the disease epidemic, propagated by the general vitiation of the atmosphere of the Rock?”

“I consider the disease to be produced by a vitiation of the atmosphere of the Rock, and that this malaria is more or less active in proportion to the distance from its source or to its accumulation and concentration in particular situations.

“Had malaria, or the effluvia from marshy places, any and what influence in the production of this disease?”

“There is no marsh, properly so called, within the territory of Gibraltar, nor even within a considerable distance of it; besides, the currents of air passing over the marshes of the adjoining country can seldom reach the garrison, as they must previously pass the Neutral Ground, where the wind blows for seven days out of eight from east to west, or *vice versa*, so as to interrupt the progress or change the direction of the breezes, carrying with them marsh effluvia.

“Were critical days observed in the course of this fever?”

“The fifth day was more frequently fatal than any other, and the average duration of the disease was about seven days.

“What were the sequelæ of this disease, visceral obstructions, ague, &c.?”

“In several cases in the 23rd Regiment an obscure remittent form of fever supervened the epidemic attack, but its paroxysms did not always begin with chills, nor did they uniformly terminate in sweating, and it was as irregular in its accessions as in any other part of its course. I have seen jaundice in one case, hepatitis in two, and, in a few, dysenteric affections of more or less severity, follow the epidemic disease; and, in one subject, it appeared to develope phthisis, which proved most rapidly fatal; one or two cases, admitted towards the end of the epidemic, became distinctly remittent from an early period.

“Were other acute diseases observable during the epidemic, particularly intermittent fever?”

“Every other acute disease had almost disappeared; and intermittents and remittents, which were comparatively frequent in the corps since its return from Portugal up to the commencement of the epidemic, also ophthalmia, were no longer to be met with.

“Were persons who had suffered once, or had had the Yellow Fever of the West Indies, liable to a second attack? state number of each.”

“I believe the immunity from second attack is very great; but, at the same time, I do not consider it so absolute as common report may seem to warrant. The only soldier in the regiment who asserted that he had passed the disease during an epidemic period in Barbados, and who had served eight years in the West Indies in another corps, died of an attack of the late epidemic. It would seem from the table in the Appendix* that a severe attack of remittent gives a comparative immunity against Yellow Fever, but it is on so very limited a scale as, of itself, to warrant no conclusion. However, as few individuals who have

* *Note from Dr. Browne's Table in the Appendix to his Report.*

Proportion of fever cases to general strength, 142 in 530, or 1 in $3\frac{2}{7}$.

Proportion of epidemic cases after intermittent, 25 in 93, or 1 in $3\frac{1}{3}$.

Proportion of epidemic cases after remittent, 11 in 61, or 1 in $5\frac{1}{11}$.

resided any length of time in a warm climate have not suffered from remittent, and as such long residents enjoy an immunity independently of any previous attack of Yellow Fever, it may be a question yet to be determined how far residence simply, or how far having suffered from remittent, may contribute to this exemption.

“What is the state of health in the adjacent parts of Spain and Barbary?”

“I do not know that any epidemic disease prevailed in the adjacent parts of Spain or Barbary; but it was asserted, in November last, that some cases of fever of an aggravated form had appeared in Algeiras, and, it has since been said, that they were smugglers who communicated with the garrison. The latter statement is important, if true, as proving the non-contagious nature of the disease; while the former would be equally a proof of the influence of physical causes and of local origin.”

LETTER (H.)

Catalina Fenic's Statement.

Gibraltar, November 14, 1829.

“Catalina Fenic, widow of Felix Fenic (alias Mateo) has this day made a statement, in presence of the undersigned, to the following effect, and which, if required, she states her readiness to corroborate, on oath, before competent authority:—

“Declares herself to be the widow of Felix Fenic, who died in the autumn of last year: says that her husband was about 68 years of age, and of a broken constitution; that he had resided in Gibraltar about 33 or 34 years.

“States that, in 1804, she was the wife of a man named Salvador de Ortega, who was then the intimate friend of Felix Fenic, the person above alluded to, and to whom she was married in 1805, after the death of her first husband (Salvador de Ortega), who died of the epidemic fever in 1804.

“States, and is ready to make oath, that her second husband (Felix Fenic) had, in 1804, a severe attack of the epidemic fever of that year, and that she and her first husband (Ortega) visited him frequently; that, in fact, she herself attended him jointly with another woman, since dead; that, during his illness, his residence was in a small house at the bottom of the stairs, in front of the Civil Hospital, then called the Blue Barracks; that, during the epidemics of 1813 and 1814 her husband resided in Gibraltar without experiencing any indisposition from the fever of those years.

“States that, after the death of their two children (Salvador and Catalina Fenic), mentioned in the proceedings of the Board of Commissioners to have taken place about the middle of August, 1828, her husband became greatly distressed in mind; that, on a certain Thursday, the police came to their house to warn them, in common with others of the district, to remove into camp; that, on that day, her husband particularly complained of a large rupture which he had had for many years, and which occasionally troubled him, being worse than usual, and increased in bulk; that she had her husband brought to the Civil Hospital next day, when he was seen by Mr. Fraser and others, but not being a fever case he was sent back to his house: on the evening of the next day they were, like all others in her district, sent to camp on the Neutral Ground.

“In camp her husband was seen by Dr. Heunen and others, but was not ordered to the lazaretto, to which all fever patients were sent: he died in their tent on Monday morning; the tent was not ordered to be fumigated or washed by any one, and that she took no precaution to prevent contagion, as she was sure her husband did not die of the fever: declares that there was no vomiting, no yellowness of skin, or other usual signs of a bad fever. Says, that he complained greatly of a pain in his throat, and that it was a question among the medical men who saw him as to bleeding him. but that they said they had no lancets with them.

“With reference to her husband having gone on board any ship in the bay at any time last summer, she most positively asserts that it was not so, as he never went out anywhere (he being an old infirm man) without letting her know ; is sure he had not been in a boat for 10 years past.

“She is equally certain that her two children, Salvador and Catalina Fenic, were not on board any boat or ship, as stated in the proceedings of the Board of Commissioners, as they were always under their eye, and were not running about like other children, or ever in the habit of going on the water.

“States that, with respect to the boy Francisco Caffero, neither she herself, nor any of her family, knew anything about him ; and that what he stated to the Commissioners as to her boy Salvador (13 years of age) and Catalina (11 years of age) having gone on board of ship is a made-up falsehood.

“States, that her children had not any of the symptoms of the epidemic of Gibraltar, with which she had been familiar during her long residence ; that the doctor (Lopez) observed some indigested portions of figs in what they passed by stool ; that they had no vomiting ; that their appearance after death was not changed like that of those persons whom she has seen die of the Yellow Fever, and that she cannot make herself believe that they died of that disease.

“Says that, during the illness of her children, five of their playmates (the children of her gossip Juaquina) constantly came to see them, but that none of these children were taken ill ; that the whole of these children, however, passed the epidemic afterwards, when permission was given to some of the families to return to the expurgated habitations.

(Signed) HUGH FRASER, *Surgeon of the Civil Hospital.*
A. BROWNE, *M.D., Assistant Surgeon 23rd R. W.F.*
J. GILLKREST, *M.D., Surgeon 43rd Regiment.*”

“I, the undersigned, do hereby certify that, on this 13th day of May, 1829, Catalina Fenic, in the foregoing statement named, appeared before me, and I then interpreted to her the whole of the said statement, which she confirmed in every particular in the fullest and most positive terms, and added that her late husband, for several years previous to his death, left off going at all into the bay, and that, being an old and infirm man, he gained his livelihood by purchasing tobacco and making it into cigars.

(Signed) ALEXANDER SHEA, *Notary Public, Gibraltar.*”

LETTER (I.)

Of the Yellow Fever outbreak at Leghorn in 1804, which has been usually termed an epidemic, though confined to a few streets, an account was given by Dr. Palloni immediately on the cessation of the disease.

He concludes as follows :—

“I shall terminate this short essay with two brief observations. The first is, that if, on the one hand, the description which we have exactly given of the malady prevailing in this city, shows the greatest analogy with the typhus icterodes of Sauvages and Cullen, and consequently with the West Indian fever, it is, on the other hand, proper to confess, that either from local circumstances, or from difference of climate, or from a less diffusibility of the morbid atmosphere, its effects and propagation have been with us infinitely more mild and more limited than in any other part where an analogous disease has developed itself.

“The other observation, which may serve as an explanation to the preceding is, that the infection of this fever is of such a nature that the pure and renewed air decomposes the morbid agency at a small distance from the sick

person ; on the contrary, an air stagnant and full of animal exhalations becomes easily a vehicle for it. This is why it has more particularly manifested itself in the dirty and badly-ventilated streets of the city, and especially in the houses of the poor, among whom, besides the individual disposition necessary to the action of every contagion, the smallness of the chambers, the want of cleanliness, and the crowding of the inhabitants multiply the points of contact and facilitate infection. On the contrary, in clean and spacious streets, and in commodious and well-ventilated houses, the disease has either rarely manifested itself or been easily checked. Thus, we can confirm the remark of Currie, that even in hospitals well-situated and clean, the morbid infection has been confined to the individual attacked, without spreading to those suffering from diseases of a different kind, in this respect differing from other epidemic and contagious diseases. And, finally, for the same reason, the fever of which we are speaking, has for the most part raged in maritime cities without extending to the interior of the country ; and in those who left the districts where it prevailed unless they were already ill when they set out, no germ of the infection has developed itself, the infection seeming thus to have been corrected and destroyed by change of air and situation. In fact, if we except two or three streets of Leghorn, which the malady seemed as it were to have chosen for its abode, few other parts of the city were attacked by it, and, with some exceptions, it did not extend to the smallest distance from the city, so that numerous persons went, and much merchandize was conveyed, daily from the most infected districts to the surrounding country.

“ A healthy man, if brought into contact with those suffering from the disease, never communicated the infection to others, unless himself attacked by it. And, in fact, though greater precautionary measures were taken regarding those who were really attacked by the malady, and regarding the clothes and other things which immediately belonged to them, yet we have not perceived that the other healthy individuals of the same family, or the other furniture of the same house, ever became a vehicle of infection. Money, merchandize, and other matters were in continual circulation both within and without the city, yet the infection was not diffused thereby. I have besides observed that a certain habit gradually acquired of receiving the impressions of this miasma, easily took away its power of acting ; in fact of the many priests that daily visited those suffering from the disease one alone was attacked and died from it ; and no assistant in the hospitals experienced its effects, and only two or three of the other people so long near the sick took the disease.

“ If, therefore, in order to take this infection, there is needed (besides a natural disposition) the vicinity or the contact of some one suffering therefrom, or of the clothes used by him during his malady, and the circumstance of an air confined, stagnant, and full of animal exhalations ;—if a small amount of habit is sufficient to elude its force ;—if healthy persons brought into the proximity of the diseased, and the merchandize exposed to the free air never carried the infection to a distance from the city ;—if, finally, pure air, and ventilation destroy this morbid agency in the vicinity of its centre, or of the diseased person ;—who does not see the difference between the malady prevailing at Leghorn and all other pestilential contagions ? How much less its force and its diffusibility ! And how false the ideas, how ill-founded the fears conceived respecting it in districts not very far removed from this city ! But we cannot adduce any stronger or more convincing argument of the utility of pure fresh ventilated air than that furnished by the happy results obtained in the new temporary hospital of St. James. Situated at no great distance from the sea, but far from the insalubrious exhalations of the city, and thus obtaining a free ventilation of the purest air, of which its construction and the disposition of its parts enabled it to enjoy all the advantages, it is truly worthy of remark that scarcely was this hospital opened for the reception of patients, when not only the virulence and extension of the disease in the city commenced to decline, but many escaped from death who seemed pre-

viously about to become its victims. It is wonderful to see how those suffering from the malady are scarcely taken from their houses, languid, prostrated, and as it were conquered by disease, and placed in this new asylum, when the vital principle seems in a moment to recover its power: they revive; they confess that a sensation of comfort succeeds to that of languor and anguish; and the malady, assuming a milder appearance, ceases to resist medical art, and yields to the suitable curative method already determined; and very soon the patients pass into a state of convalescence which is neither long nor painful."

LETTER (K.)

Extract from "Some Account of the Fever which prevailed in the Garrison of St. Ann, Barbados, in 1847, 1848, and 1849, by Dr. JOHN DAVY, Inspector-General of Hospitals." Edin. Med. and Surg. Journal, October 1849, page 277.

(The 66th, 72nd, 88th, and Artillery were the regiments which suffered, and out of a force of 1,200 men, 196 deaths occurred.)

P. 281.—"Relative to the origin of the endemic, it must, I believe, be confessed that there was the greatest obscurity. The weather at its commencement was unusually cool and pleasant; before its outbreak, and while it lasted, the seasons were nowise peculiar. Several circumstances at the time were pointed out as probable causes, such as an accumulation of rank vegetation on, with urinous exhalations from, a neglected hollow between the artillery and stone barrack, and to windward of the latter; the state of the Savannah, and of the adjoining ground, defectively drained, liable to be flooded after heavy rains, to retain water stagnant for a while, and, after a period of drought, to become parched and fissured; the state of the grave-yard, lying between the barracks and the shore, in unsuitable ground, either too rocky generally, or sandy and unduly crowded; and, lastly, the breaking up of a considerable extent of ground to some depth, and the levelling it for the improvement of the works in the neighbourhood of the barracks, where the disease first appeared. Whether any one of these circumstances, or whether all of them combined, had effect or not in the production of the disease, I cannot venture to affirm. That it was of local origin seems to me hardly doubtful, whatever the local cause may have been. The fact most conclusive in proof of this was the isolation of the disease. During the whole period it was confined to the garrison of St. Ann, and, during a considerable portion of the period, to the barracks and quarters situated on the lower ground, where the drainage was most defective, and the conjectured local causes most active.

"An opinion, I am informed, has been expressed that the disease was imported, and by Her Majesty's war-steamer 'Growler,' from the coast of Africa. That ship was employed in conveying liberated Africans to the West Indies. She left Sierra Leone on the 12th of November, 1847, and arrived at Trinidad on the 5th of December. During the voyage, 46 deaths occurred amongst the emigrants from chronic dysentery, and two deaths amongst the crew from fever. The emigrants were landed at Port of Spain. No fever was there introduced, although no precautions were taken that I have been able to learn to prevent unrestricted communication. She took her departure from Trinidad on the 8th of December; arrived at Barbados on the 10th; proceeded from thence on the 18th, and reached the Bermudas on the 24th. There, according to established usage, having come from the coast of Africa with fever on board, she was placed in quarantine; the crew landed and kept apart—the sick from the well, and the vessel thoroughly cleaned and fumigated. On examining the holds and bilges, they were found in a very offensive state, from accumulated vegetable matter, rice, chips, and shavings, in a decomposing state. 'The atmosphere in the carpenter's store-room would not support combustion.' The fever was not communicated at the Bermudas to a

family of five persons associated with the sick on shore; but two individuals from the shore, who were engaged on board in conducting the cleaning of the vessel, contracted it, as did also a certain number of the crew similarly employed, and only those so employed. The total number of cases of fever under treatment from the 'Growler' were 75, of which 3 only terminated in death, 72 having recovered. These particulars I have collected from an 'Extract from the Journal of Mr. Robert M'Crae, Surgeon of Her Majesty's ship "Growler,"' a copy of which interesting document is now before me, with which I have been favoured by the head of the medical department of the navy, Sir William Burnett. Mr. M'Crae, who had the best opportunities for arriving at the truth; in his journal expresses himself satisfied that the fever originated in the ship from the causes referred to, and that it was nowise contagious. The facts he adduces seem to bear him out fairly in these conclusions.*

"But even if these conclusions of his be doubted, there is no proof that the Yellow Fever in Barbados was derived from the 'Growler.' It was rumoured that the two men of the 88th Regiment who were first attacked, and who died, had been on board. The result of careful inquiry is that this rumour was groundless—a mere conjecture. Even considering the time of arrival of the 'Growler' at Barbados, on the 10th December, at noon, and that the first two fatal cases in the 88th terminated on the 19th of that month, one after a treatment of three days in hospital, the other of five days, it seems improbable that the fever was contracted by a visit to the ship, were there proof, which was altogether wanting, that such a visit had been made. Moreover, the wives of the two men first attacked also experienced the disease, and according to my recollection, for I cannot find any note on the subject, as soon as, or a little before, their husbands; and they too fell victims to it. They occupied a low, ill-ventilated room of the iron barracks, intended, not for the accommodation of troops, but for use as a store-room. It was here that the disease first appeared, and scarcely a person escaped the fever who, from inconsiderate indulgence, had been permitted to be there. They were married men and their families, to whom any place apart is always acceptable. Further, it is worthy of remark that the inhabitants of Bridgetown, like the inhabitants of Port of Spain, in Trinidad, were not visited by fever after the arrival of the 'Growler,' many of whom, in communication with the crew in affording supplies, must, it may be inferred, have been more likely to have contracted it, had the disease been contagious, than the troops in garrison. Even the character of the fever amongst the crew of the 'Growler,' and of that in the 88th, had not such a close resemblance as to warrant their being considered identical in species. Yellowness of the skin is not mentioned as having appeared in any instance amongst the former. The majority of the ship cases appear to have been of no great severity, and without the symptoms denoting the malignant character, a mildness well marked by the large proportion of recoveries, 1 only in 25 proving fatal, whilst in the garrison 1 died in about every 5 attacked. It is true that in some of the 'Growler' cases there was irritability of stomach, and that, in one which terminated fatally, death was preceded by 'black vomit,' a solitary example, as reported by the surgeon. But irritability of stomach is not an unfrequent accompaniment of the common remittent fever of the West Indies, and 'black vomit' is occasionally witnessed in it, or in sporadic cases of fever, which may be of the nature of Yellow Fever, although solitary. The symptoms of the two, viz., of Yellow Fever and of remittent, excepting when the diseases are strongly marked, having many points in common, and consequently difficult to be distinguished.

* "When the holds of the 'Growler' were opened at Woolwich, after her return from the coast of Africa, two men who slept directly over the hatchway were seized with fever, possessing all the characteristics of Yellow Fever, and in the course of a few days they both had black vomit and died in the Marine Infirmary, where they had been taken at the commencement of the disease." *Bryson on Climate and Diseases of African Station*, p. 224.

“The same persons who suppose that the fever was imported, of course also suppose that it was contagious or infectious. Whether Yellow Fever is contagious or not seems to be admitted to be a difficult problem. The manner in which those who have specially considered the subject are divided in opinion respecting it, is sufficient proof of this difficulty. I feel it right candidly to confess that at the outbreak of the disease I belonged to the class of non-contagionists, and that what I witnessed during its progress confirmed me in the persuasion. The fact of its being confined for so many months to the low localities in which it first appeared; not spreading to the troops occupying the higher barracks, though not more than 1,600 feet distant; and not spreading to them in the instance of the 7th Fusileers, when the 88th were encamped within a few feet of the upper barracks, and for some time were sending into hospital fresh cases of the disease; the manner in which the inhabitants of the populous and crowded town adjoining, Bridgetown, in unrestricted communication with the garrison, remained exempt from it; the small number of cases of the disease which originated in the hospital, whether amongst the orderlies attending on the sick, or amongst the sick themselves—such who were admitted with other ailments—are circumstances, it seems to me, not reconcilable with the idea of the fever being of a contagious character. I have alluded to the small number of cases of fever that originated in the hospital. From a return now before me it appears that from the 26th February to the 30th September, 1848, in the 66th hospital, one orderly only attending the sick was attacked with fever, and that slightly, and only three patients admitted with other diseases.

“Some respectable medical authorities hold a doctrine, as it were, intermediate between that of contagion and of non-contagion, viz., that a disease not originally contagious may become so under peculiar circumstances. To prove or disprove this is necessarily difficult. It must be kept in mind that every endemic or epidemic disease has, as to the manner of its occurrence, after its first appearance, a good deal of the character of an infectious or contagious disease. Every disease of the former kind has, at some time or other, been held to belong to the latter. Those who advocate this expediency doctrine might adduce in support of it the circumstance that, though the 7th Royal Fusileers, in communication with the 88th, escaped the fever, and though the 72nd Highlanders, for some months similarly situated, also escaped it, yet ultimately the disease appeared amongst them, and after its first appearance spread rapidly. In reply, it may be remarked that, considering how near the regiments were stationed in the same garrison, living in the same manner, performing the same duties, and often in common, and exposed, therefore, partially to the same causes, it is more surprising that the 72nd so long remained exempt, than that it was at length attacked.

“The history of Yellow Fever in the West Indies, from the early period when, by the contagionists of that time, it was called the ‘Mal de Siam,’ to the later period when it was named the ‘Boulam Fever,’ seems to me to afford corroborative evidence that in every instance it has been of local origin, and neither contagious at its commencement nor in its progress. From all the information I have been able to collect, Yellow Fever is not the prevailing fever of the western coast of Africa; it is doubtful whether it ever occurs there. Of this we are certain, that it rarely in the West Indies attacks individuals of the African race. We are also certain that those situations most exposed to infection or contagion from without, such as ports communicating most freely with other ports and marts of commerce, are not more frequently visited by Yellow Fever than spots where there are troops in a manner isolated. I think, too, it must be admitted that in no instance—not a single one—not even in that specially called the Boulam fever—has there been fair and satisfactory proof afforded that the disease was imported, and not of local origin.”

LETTER (L.)

Some Remarks on Yellow Fever from the pen of the late Dr. W. Fergusson, Inspector-General of Hospitals.

“In regard to the contagion of Yellow Fever, all those best qualified to judge, that is to say, those who have spent their lives and devoted their services in the countries between the tropics, where it is so often present, are of the same opinion. I do not pretend to say that, amidst the heterogenous mixture of which our profession is composed, I have not heard some profess, and even subscribe, to a different belief; but I can declare that, I never knew a single instance of any one, provided he had had experience of the disease, acting as if he believed in its being contagious, or taking any of the precautions which the instinct of fear, or the smallest degree of common prudence, would, in that case, have dictated: he was contented with voting himself contagion-proof, and never scrupled to inhale the breath, or repose within the atmosphere, of the dying patient. * * * I presume it will not be denied that those who served during the war in Saint Domingo, where so many British troops perished, must have had some experience of Yellow Fever. I remained there till the last, and saw the work of destruction completed. At first, every new comer, whether medical or otherwise, had his fears, or, I should rather say, had the firmest belief in contagion; but with none did that prejudice ever remain beyond the year: it vanished infallibly, as soon as he saw and had had experience of the disease; and I can declare that, during the latter years of our sojourn there, with hundreds of cases daily before our eyes, mixed in every conceivable way with the surgical, the convalescent, and the healthy, I never even heard the idea started, nor do I recollect a single precaution, advice, or observation, that acknowledged the existence of contagion ever being directed to the medical staff of the army from any quarter. I appeal to the writings of Dr. McLean, the evidence of Mr. Weir, Dr. Jackson, Drs. Theodore Gordon, Borland, Inspector Warren, and all the medical officers who served there to bear me out in this assertion. I appeal to the evidence of every medical officer now serving in the West Indies, that has ever had experience of the disease (for there may very probably be found contagionists among those who never saw it), to say whether, in their lives, they ever met with a case of Yellow Fever that could, with greater feasibility, be traced to a personal communication with a subject labouring under the disease than to the ordinary natural causes from which it has been proved to originate. * * * It would have done the same to the writers on the fevers of Spain if they had not dismissed all their doubts, and set inquiry to rest, by attributing the whole to imported contagion. But had they inquired instead of peremptorily deciding, they might have found that, during the epidemic visitation of these fevers, not only do towns and districts escape altogether, as we see at present in the West Indies, but that different parts of the same town are differently affected; and so limited often is their influence, that one story of a house and one section of a ship will be strongly affected by it, while all other parts of the same tenements remain healthy; and then their wonder at what has been called the desultory progress of the fever during the short course of an European autumn need not have been so great as to have been inexplicable through any source but that to which they referred it. At Barbados, our hospitals, of late, had been in a regular course of importation of the Yellow Fever from the navy; but not even inoculation has been able to produce the disease upon any member of the hospital corps, by whom I may truly say that *the sick had been* received with open arms, for the antisocial doctrines of ideal contagions are not preached amongst us here to the prejudice of duty and humanity. * * * The physician, in civil life, however superior he may be in learning and talents, as he sees only insulated cases, cannot have the same advantages, and must be much more liable to form erroneous conclusions. He may see, for instance, during the autumnal season of Europe, the inhabitants of a humid, unwholesome

house fall ill with dysentery one after the other, according to the degree of predisposition or staining of resistance in the respective individuals, and thence conclude, with much *apparent* justice, that dysentery is a contagious disease; but take him to the well-regulated encampment, and show him its hospitals, what every experienced medical man has seen,—a thousand dysenteric patients attended by a hundred servants without affecting one of the attendants, he certainly would for ever be cured of the delusion.* * * Unfortunately these opportunities of observation are not always sought for; and as experience of Yellow Fever in civil life is often trifling, limited to particular seasons and circumstances of exposure in the subject, he may, though difficult to experience, believe in his doctrine of contagion to the end, and do his utmost to alarm the public: but the military medical officer who has once seen the disease in the gross, as it affects newly-arrived troops here, never can be deceived in respect to its non-contagious character (if his mind be capable of distinguishing truth from error), and, in fact, never is in these climates.”

LETTER (M.)

Among the medical officers of experience in the West Indies from whom I have requested an opinion in reference to the contagion or non-contagion of Yellow Fever, is Staff-Surgeon Melvin, who served, I believe, no less than 20 years on that station.

In a letter written to a friend, Mr. Melvin says:—

“MY DEAR DOCTOR,

“IN my last letter, very likely I did not express myself so clearly as I should have done about the Yellow Fever which occurred when I was last in Demerara.

“DURING the time I was serving there last I met with two severe visitations of it among the white troops in the garrison. During each occurrence of it most of the orderlies and men who came into hospital with other trifling complaints were attacked with it, and many of them died.

“I put a stop to it the first time this scourge of the West Indies made its appearance. I had the most of the white troops removed from the colony.

“WHEN it made its appearance a second time, in a fresh corps, in 1842, the cases of true Yellow Fever were numerous and of the worst description—and during this visitation every non-commissioned officer who was employed about the hospital was attacked with the disease, as also the orderlies, (two of the former and three of the latter died)—I never had the most distant idea that contagion was the cause of these attacks among the hospital servants, nor with some of the patients who were attacked with Yellow Fever when in hospital under treatment for slight complaints; but that the cause was external, and from the very insalubrious situation of the hospital.

“TO the windward of this hospital there was a large tract of ground which had been recently reclaimed by deposits from the sea. This ground was covered by the tides, and when they were out exposed to the hot burning sun, which could not do otherwise than produce plenty of exhalations from the muddy surface; and, besides this, on all sides, and very close to the hospital, there were filthy trenches, and the ground for some way all round the hospital was very badly drained, in hot weather cracking into large deep fissures, which during the rainy season were filled with water. I may state that the newly-formed ground was only a few yards distant from the hospital, and when in this country before, I have seen vessels of considerable size sailing over it.

“THINKING as I did about the origin and cause of this fever attacking the hospital servants and patients under treatment in it, I determined to try the experiment of removing the whole of the sick of the white troops from the regular hospital to a building in Kingston, nearly half a mile distant, and

which in former days was the hospital. I therefore removed all the sick. Some of the cases of Yellow Fever were very bad; one of them at the time was bringing up large quantities of black vomit, and had much hæmorrhage from the gums and nose, with an exceedingly cadaverous and disagreeable smell emanating from his body; in fact, he in every way appeared to be quite hopeless. However, to my delight, this case, as well as every other, perfectly recovered, which most assuredly would not have been the case had not the change of situation been made. And to my further delight and comfort I had not a single servant attacked with Yellow Fever, nor did I lose a single ease from it while I occupied this old hospital; but I had cases of regular Yellow Fever among some of the families in the barracks. During the period I have been speaking of I attended the sick of the white troops entirely myself.

“With regard to the ground about this old hospital which I had the sick taken to, it was well drained, and, above all, it was out of the influence of the new marshy and muddy ground so very close to the new regular hospital.

“I cannot think how any one can be a contagionist as regards Yellow Fever.”

Copy of a Letter from Staff-Surgeon Dr. Spence, formerly Assistant Surgeon to the 52nd Regiment, while serving in Barbados in 1838-9, dated Bishop-Wearmouth, 18th November, 1846.*

“MY DEAR SIR,

“KNOWING your desire for information relative to the cause of ‘fever,’ I have great pleasure in communicating to you a few observations upon an epidemic form of Yellow Fever as it affected the 52nd Light Infantry at Barbados in the latter part of the years 1838 and 1839.

“You are aware that the 52nd embarked at Gibraltar in Her Majesty’s ship ‘Hercules,’ commanded by Captain Toup Nicholas, about the 13th October, 1838, in the most perfect state of health, and also that fever was not more than commonly prevalent at that time in the garrison; but on the day previous to embarkation the troops were exposed to a deluge of rain whilst at field exercise for the inspection of His Royal Highness Prince George of Cambridge, in consequence of which one man was subjected to an attack of gastro-enteric fever, of which he died; but I pledge you my honour without one symptom of Yellow Fever, as I afterwards observed it. I cannot at this time get at my notes, and therefore am unable to state with precision how many days this death occurred before our arrival at Barbados, but think it must have been from 10 to 14; however, be that as it may, the regiment disembarked on the 6th November, without a medical case.

“On the day of arrival we occupied barracks together with the 36th Regiment, who the next day embarked in the ‘Hercules.’ Major Cross (having resided in the officers’ quarters, afterwards tenanted by Mr. Winterbottom,) actually going on board with fever upon him, died in three days with ‘black vomit,’ whilst the vessel was in harbour, and his corpse was brought on shore for interment.

“On the 10th November, Lieutenant Gough, of the 52nd, first complained of indisposition, of which he died in three days; and between this period and the 31st December, out of 36 individuals, namely, officers, their servants, non-commissioned officers, and soldiers connected with the orderly-room and quartermaster’s store, all of whom were occupied or residing in the building appropriated as quarters, and mess-room for the officers (out of which Major Cross had gone), 28 were attacked with fever, and 10 died, whilst of the whole regiment residing in the soldiers’ barrack, so short a distance as 50 paces from the fatal spot, only 30 cases occurred, and none died.

“An investigation was instituted at the time relative to the cause of this

* One of the members of the Medical Board lately assembled in London to investigate the subject of Yellow Fever.—(See Appendix IV., p. 318).

fever, particularly having reference to the concentration of the pestilential essence in the officers' quarters, but after the greatest care nothing could be detected in the slightest degree calculated to throw light on the subject; but it was recommended that the quarters should be evacuated forthwith, and forthwith the fever stopped, for after this measure not one case occurred. Captain Vigors was in the height of fever at the time of the move, and was conveyed to a room in the house temporarily hired as a mess-house and quarters for officers, and although four officers, who arrived from England in the latter part of December, had free intercourse with him, and were constantly in the new mess-house, they were not attacked, because they scrupulously avoided the infected locality.

"Thus far, the cause of the malady was involved in the utmost obscurity, but at the time of writing this letter I entertain the fullest conviction that the 'malaria' occasioning such destruction was engendered either in the fresh-water swamp, occasioned by the heavy rain falling on low ground between the back of the hospital and the officers' barracks, or by emanations from a swamp containing much vegetable matter, and communicating with the sea, about a mile to the windward of the regimental hospital.

"The doctrine of the contagious nature of fever is in my mind so erroneous that I should not dwell thereon were it not with the view of enabling you to refute, so far as my feeble efforts can, the opinions entertained in reference to the origin of the fever on this particular occasion. In the first place, if the principle of contagion existed in the 'Hercules' (which I cannot admit, though I believe such to have been stated by Captain Nicholas), whether is it more reasonable to believe that it was brought on board by the soldier of the 52nd, who died without any characteristic sign of Yellow Fever, or by Major Cross, who died with a 'black vomit' three days after he embarked, and had a rigor the night before he left the garrison? Captain Nicholas, however, seems to think otherwise, and blames the unfortunate soldier of the 52nd for an alarming fever which affected some of the officers of his ship whilst conveying the 36th Regiment from Barbados to Halifax, but he omitted to state whether any were attacked but those who had dined with the officers of the 52nd at Barbados, and thus been exposed to the cause of fever existing in the locality of the mess-room, which question you will admit as one necessary to be decided before giving adherence to his views. Whilst on this subject, it may be well to attract attention to the fact that whilst the 52nd Regiment suffered so much, none of the other troops in garrison were in the least affected, which I think must have been the case had it been a contagious disease, brought by them from Gibraltar, for there was no cordon placed around the barrack, nay, indeed, all the sick soldiers were treated under the same roof as the soldiers of the 69th, and, to the best of my recollection, that regiment had but one case, and that occurred in an old soldier long seasoned in the country, who was lent by Colonel Monins to the officer suddenly called upon to perform the duties of paymaster, upon the death of Mr. Winterbottom. This poor man wrote in Captain French's room one day, and was dead three days afterwards. Now Captain French never had fever.

"On the 1st November, 1839, cases of this peculiar form of fever again appeared in the 52nd, taking a progressive course directly with the wind from the hospital (the serjeant and orderlies of which were first attacked), in a straight line across a swamp to the barracks. On this occasion the officers' quarters yielded three fatal cases only, and the disease appeared pretty generally through the soldiers' barrack, and in the huts occupied by the non-commissioned officers and married people. Thus, although the influence of the cause seemed to travel in a more extensive vein than in the previous year, yet the pestilence was almost entirely again confined to the quarters occupied by this regiment, as only three fatal cases occurred amongst all the other troops in the garrison. Therefore, at the recommendation of Mr. Draper, Inspector-General of Hospitals, the 52nd were moved to an encampment about a quarter of a mile to windward of the swamp before mentioned, instead of being to

leeward; and no case was admitted for a fortnight after the move, and, indeed, only three fatal cases occurred subsequently, and the individuals had been employed at the barrack.

“ I am, &c.,

“ THOMAS SPENCE, M.D.”

LETTER (N.)

The following is an extract from a pamphlet on the Yellow Fever at Galveston (Texas) in 1839, by Dr. Ashbel Smith.

This gentleman had studied in Paris, and was some 10 years ago employed as envoy from Texas to the British Government, he says:—

“ The *exclusive* confinement of the disease to persons much exposed in the infected district, the frequent removal of the sick from this district to the healthy parts of the city, without communicating the disease to the attendants or any other persons whatsoever, strongly confirm the opinion of its non-contagiousness.

“ The local causes are the decomposition of *abundant* animal and vegetable matters, going on under and around the houses on the ‘ Strand,’ and the exhalations from the extensive adjacent marsh and quagmire, exposed to an ardent sun, whose thermometrical range in the coolest shade for several hours daily, has been from 84 to 89 degrees of Fahrenheit.

“ The sick have been in numerous instances removed from the infected district to the healthy sections of the city, and in no case, as far as I can learn on careful inquiry, have the attendants or inmates of the houses contracted the disease. On the contrary, the city, with the exception of the infected quarter, has enjoyed its unsurpassed general healthfulness.

“ I have made several *post mortem* examinations, handling every organ without squeamishness, immersing my hands freely in the black vomit and other fluids, smelling and viewing them closely; I have repeatedly tasted black vomit when fresh ejected from the stomachs of the living; I am not aware of ever having experienced further inconvenience or effect than fatigue.

“ Of the physicians who practised in this disease all escaped an attack except two; these two *resided* in the *infected* district; the others lived without it.

“ After a careful observation of the history of the epidemic, no fact has come to light which would show that the disease is contagious, that it is communicable from a person labouring under it to one in health, but that it is contracted only by exposure in the infected district.

“ The subject of contagion is one of great importance. A belief in the contagiousness of this disease would deprive the sick of the most necessary attentions; non-contagion destroys many of the horrors of an epidemic, as a removal only a short distance places us beyond its influence.”

LETTER (O.)

The following is a Resumè of the very valuable Manifesto of the 15 Physicians present at the Yellow Fever epidemic of 1821 at Barcelona.

“ From all that has been stated it results—

“ 1. That the fever which prevailed in Barcelona in 1821 was *indigenous*.

“ 2. That it was epidemic.

“ 3. That it was *not* contagious.

“ 4. That the sanitary measures adopted by the Government were precarious, wholly useless, and even prejudicial, if we except that of *emigration*.

“5. That if, instead of remaining in a shameful inaction, expecting to *knock on the head* an invisible and imaginary contagion, unknown in its essence, and impossible to be demonstrated, all the means calculated to remove the local causes, were employed with constancy and energy, it might be hoped that the disease would not re-appear; that this beautiful capital would recover the degree of salubrity which it was formerly wont to enjoy; and that commerce and industry, in a word, that prosperity extending not only to all Catalonia, but to the whole of Spain, and even to the most distant nations, would revive.

“*Barcelona, February 21, 1822.*”

- LASSIS (SIMON), D.M., of Paris. (a)
 ROCHOUX (J. A.), D.M., of Paris. (b)
 FRANCISCO FIGUILLEM, M.D., of Barcelona. (c)
 FRANCISCO SALVA, M.D., of Barcelona. (d)
 MANUAL DURAN, M.D., of Barcelona. (e)
 JUAN LOPEZ, M.D., of Barcelona. (f)
 SALVADOR CAMPANY, M.D., of Barcelona. (g)
 IGNACIO PORTA, M.D., of Barcelona. (h)
 JOSE CALVERAS, M.D., of Barcelona. (i)
 ANTONIO MAYNER, M.D., of Barcelona. (k)
 RAYMUNDO DURAN, M.D., of Barcelona. (l)
 BUENAVENTURA SALMO, M.D., of Barcelona. (m)
 JOHN LEYMERIE, M.D., Citizen of the United States. (n)
 THOMAS O'HALLORAN, M.D., British Army. (o)
 CHARLES MACLEAN, M.D., of London.

“N.B.—In order to obviate misconception, I think it right here to observe, that the first edition of the Manifesto, published at Barcelona, had only *thirteen* signatures, Drs. Leymerie and O'Halloran having left that city before it appeared. Their names were, however, added on the publication of the Madrid edition, augmenting the signatures to *fifteen*, being the original number of our spontaneous association.”

(a) “Formerly Physician to the French Armies, and Physician-in-Chief of the Hospital of Nemours; author of “Recherches sur les veritables causes de Maladies epidemiques, appellées Typhus,” &c. Paris, 1819.

(b) “Member of the Medical Commission sent by the French Government to Catalonia; formerly Physician *en second* to the Military Hospital of Fort Royal, Martinique; author of “Recherches sur la Fievre Jaune, et Preuves de sa non contagion dans les Antilles.” Paris, 1822.

(c) “Vice-President of the Sub-delegation of Medicine; Clinical Professor; member of various learned bodies; an eminent practitioner, who, after having distinguished himself as a writer *in favour* of pestilential contagion, had the magnanimity to avow his conviction of the truth of the opposite opinion.

(d) “Honorary Physician to the King; Clinical Professor; Dean of the Faculty of Medicine of Barcelona; member of various academies. This venerable physician has been justly celebrated by Townsend for his courage and humanity in resisting, happily with success, a despotic and barbarous mandate of the Court, directing the exclusive administration of a nostrum of the King's physician, during a pestilence at Barcelona.

(e) “Member of the Academy of Practical Medicine; a convert from conviction at an advanced period of life.

(f) “Member of the Superior Junta of Sanidad of Catalonia; a man of great experience, modesty, and discernment; a convert from conviction.

(g) “Member of the Academy; Physician to the Military Hospital; the first to volunteer his services to attend the patients in the foul lazaretto. At the commencement so thorough a believer in contagion, as to have worn an oil-cloth dress.

(h) “Member of the Academy of Practical Medicine.

(i) “Member of the Subdelegation of Medicine.

(k) “A respectable practitioner, who occasionally exercised his talent in satirising the “sanitary” proceedings of 1821.

(l) “Physician to the General Hospital; wrote occasionally against the doctrine

of pestilential contagion in the journals; had himself the fever, in which he was attended by Dr. O'Halloran and myself, in consultation with ten or a dozen of our Barcelona colleagues. Extreme unction had been administered, but happily he recovered, to the great satisfaction of all his professional brethren, as well as to the benefit of our joint manifesto.

(n) "Physician to the General Hospital; had double labour during the latter part of the epidemic on account of the illness of his colleague, which he performed with much cheerfulness. Animated with a laudable anxiety to give information respecting the affairs of his department.

(o) "Formerly Physician in chief to the Hospital of Santiago in Paris, member of various learned societies, and attached to the American legation at Madrid.

(o) "Member of the medical academies of Madrid and Barcelona; author of two works on the epidemics of Spain: a volunteer, with permission of his Royal Highness the Duke of York, to investigate the fever of Barcelona, and to succour its suffering inhabitants."—Maclean's *Evils of Quarantine Laws*.

LETTER (P.)

For a full Account of the Appearance of Yellow Fever at St. Andero in 1813, see the Thesis of Dr. Bone's Son, Dr. Hugh Bone, of the medical staff. (Edinburgh, 1846), p. 19.

"In the autumn of 1813, being the close of the Peninsular War, sporadic cases of Yellow Fever appeared in the depôt barraek in St. Andero in Spain, and after the Christmas holidays became numerous. The barraek was inspected by Dr. Erly and by Dr. Bone, and was supposed, from the foul state of the sewers and privies, to be unhealthy. The troops were removed to a healthy situation, and soon became healthy. But the removal of the troops attracted the notice of the Spanish authorities; their board of health suspected the British hospitals, and pronounced the disease to be Yellow Fever, and contagious. The British medical officers were unanimously of opinion that the disease was not contagious; but the patients who were yellow were selected and put in quarantine in moveable hospitals in a healthy situation. Dr. Bone was in charge of the quarantine hospitals. Fifty of the patients were yellow, and eleven of them died, and were all carefully dissected by him or by his assistants, yet none of them caught Yellow Fever, nor any of the other patients in the quarantine hospital, nor any of the hospital servants or washerwomen, nor any of the patients or servants in the hospital from which the yellow patients were taken. He calculated that 700 persons had been exposed to the influence of the disease, yet none caught Yellow Fever. The cordon of troops did their duty, the British strictly, the Spanish with ferocity, but could not prevent all intercourse with the quarantine hospital.

"The president of the board of health had been a professor in one of the Spanish universities, and was learned, and, for a Spaniard, liberal and not bigoted. Having repeatedly and minutely examined the Yellow Fever patients in the quarantine hospital, he changed his opinion, and declared the disease to be non-contagious or little contagious, and in many cases only jaundice. The junta fined him for altering his opinion; he carried on a paper war with them; the argument was in his favour, but the power was against him, and they levied the fine; but the British officers in St. Andero, thinking it unjust that the professor should be fined for declaring the truth, raised the sum by subscription, and presented it to the professor, with a kind and well-penned letter by Dr. Erly, and the professor was compensated for the persecution of his bigoted countrymen."

LETTER (Q).

Dr. John Wilson, R.N., at page 142 of his book on West Indian Fever, referring to the case of the "Iphigenia," at Port Royal, Jamaica, on board of which Yellow Fever had appeared in February 1820, furnishes a letter from Dr. Baneroff, Deputy-Inspector of Hospitals at that island, addressed to Rear-Admiral Sir Home Popham, in which we have the following paragraph:—

"All we have been able to discover in its history and progress tends to convince us that the fever in the 'Iphigenia' has neither originated in, or been propagated by, contagion."

At page 144, Dr. Wilson furnishes a copy of an official document from Dr. Adolphus, Deputy-Inspector of Hospitals at Jamaica, 4th February, 1820. After stating that he had made a most minute inspection of the "Iphigenia," Dr. Adolphus says:—

"From the observations my experience of the diseases of this climate has enabled me to make, it appears that at least nine-tenths of European subjects, whether in civil or military life, are not only liable to, but are actually seized with fever within the first 12 or 15 months after their arrival in a tropical climate; that when the disease has once shown itself among a considerable body of men (as in the army and navy) it is sure to spread with unerring certainty to a greater extent, and under a more aggravated form, than when persons in civil life are the subjects of its attacks; not from any contagious properties, which I distinctly and wholly deny, but occasioned by the dreadful presentiments which the men invariably encourage under such circumstances by that terror of disease which is sure to predispose the constitution to febrile attacks, upon the slightest deviation from the established rules for the preservation of health, amongst persons unassimilated to the climate.

"When it is considered, therefore, that the crew of the 'Iphigenia' had never undergone what is emphatically called 'a seasoning,' in its terrific form it is not to be wondered at that sickness should at length make its appearance among them.

"With regard to the nature of the fever, I consider it, what time has proved it to be, the indigenous offspring of this climate; and its degree of mildness and severity to depend on the circumstances of season, of locality, and constitutional temperament; and, lastly, I consider the fever to have been produced by increased temperature and other atmospheric causes.

"J. ADOLPHUS, M.D.,
"Deputy-Inspector of Hospitals."

Dr. Wilson next gives, page 145, a letter from Surgeon Macnamara, of the Naval Hospital, Port Royal, Jamaica, dated 7th February, 1820:—

"Naval Hospital, Port Royal,
"February 7, 1820.

"SIR,

"On the 14th of last month, when I had the honour of waiting upon you on board of His Majesty's ship 'Sybille,' the number of patients in this hospital amounted to only 17, the greater part of whom were convalescent. However, it is with infinite regret I find it my duty to state for your information that on the evening of that day two petty officers were received from His Majesty's ship 'Iphigenia,' labouring under fever, the symptoms of which were of so marked and unequivocal a nature as to induce me to represent to Captain Parker the absolute necessity of his proceeding to sea, to avert, if possible, the extension of the disease, which seldom fails of communicating its baneful influence to the whole of any ship's company where it has once displayed itself."

[He then states that, in consequence of his recommendation, the ship put to

sea, but returned at the end of four days, the disease having continued to prevail on board.]

"Immediately on her arrival, 13 cases of fever were sent to the hospital."

[He then proceeds to state the number of daily admissions and deaths up to the 6th of February, the total number of admissions from the ship being 121, 30 of which proved fatal, and continues:—]

"Notwithstanding every inquiry which I have been able to make in endeavouring to ascertain the remote cause of this destructive malady, it still continues to elude my research, nor have other medical gentlemen of great talent and experience been more successful in theirs.

"Indeed, sir, it is difficult to account for the generation of disease in a ship so well regulated, and in such a state of high discipline, as the 'Iphigenia;' and I am most positively and decidedly of opinion that the disease, which has already committed such ravages on board that ship, is to be solely attributed to a particularly vitiated state of the atmosphere, the influence of which has been experienced along the whole of the American coast, from the northern bank of the Orinooko to Boston in New England, and in the adjacent islands.

"With respect to the local management on board the 'Iphigenia' since the appearance of this disease, every precaution which human foresight and experience of the past could devise has been had recourse to, to prevent, if possible, the extension of so insidious an enemy. Her hold has been cleared, and fires kept constantly burning therein, and I can with confidence assert that her timbers are at this moment as dry as the head of her mainmast.

"J. MACNAMARA,

"Surgeon of the Naval Hospital."

"To _____.

(Name of superior officer not given with this letter.)

At page 152 Dr. Wilson enters into his views as to the cause of Yellow Fever on board ship, which he attributes to a particular decomposition of the timbers, spars, &c., on board. This part of the subject, however, involving somewhat of theory, cannot here be entered upon with advantage.

LETTER (R).

On the reappearance of fever at Boa Vista in 1846 the Lords of the Admiralty ordered Dr. King, R.N., I believe one of the most experienced in Yellow Fever of the Naval Medical Officers, to proceed to that island for the purpose of affording assistance, and also to investigate any circumstances regarding the outbreak of fever in the preceding year as connected with the visit of the "Eclair." This gentleman, in his report, printed by order of the House of Commons, 10th March, 1848, says, page 1, "I venture to presume that I have succeeded in establishing arguments in support of my own views, deduced from indubitable facts, which remain altogether unnoticed in the report of Dr. M'William."

The "instructions" to both Dr. M'William and Dr. King were, I understand, precisely similar, but it does not appear that the replies from each were given categorically. The latter gentleman is most circumstantial in his details, as, for instance, where he states (page 9 of his report):—"That the common air which was inhaled by every living thing on the island was in an epidemic condition in the months of October, November, and December, in both years, is sufficiently demonstrated by the simultaneous occurrence of universal sickness and great mortality among the cattle (including cows, horses, mules, donkeys, and goats), at the very time that fever was raging among the inhabitants. And further, there was this remarkable coincidence, that after an

interval of some months, and the disappearance of disease both in man and beast, the same fever broke out again in the towns and villages about the rainy season in the following year, and was again accompanied by the same murrain among the cattle, which in the two seasons proved fatal to two-thirds of the whole stock of the island."

He states that, though not having personal opportunities of observing, he ascertained to his satisfaction that the disease which prevailed at Boa Vista was essentially the same as that which prevailed in the "Eclair:" that he examined at Boa Vista all the survivors said to have had connection with the "Eclair," as labourers, washerwomen, and soldiers; this was carefully done and their statements drawn up in the presence of the señor Baptista, and John Jamieson, the interpreter, who was the consul's storekeeper. He states, that the labourers attacked had not been exposed to contagion had such a thing existed; and that the fever was not communicated to the persons in the house into which the sick British officers and their servants had been received.

Dr. Almeida of Boa Vista, considered the disease alluded to as an aggravated type of the bilious remittent, and in such belief positively continued, as stated to me by Dr. King,* until after the arrival of a communication to him from the British Superintendent of Quarantine.

Finally, Dr. King has come to the following conclusions (page 7 of report). "It becomes therefore a duty to express my opinion decidedly that there is no satisfactory proof of the disease having been propagated by contagion or from a specific poison, which is said to emanate from the bodies of the sick, 'the dying, or the dead'" (page 13). "And I must now declare my belief firmly, but conscientiously, that the Yellow Fever is not a contagious disease."

LETTER (S.)

In consequence of petitions from many citizens of New York, the House of Assembly appointed a Select Committee in relation to the Quarantine Laws, to assemble at Albany in 1845. The members of the Committee were D. E. Wheeler, C. Comstock, and R. H. Hine. Their Report is dated January 22, 1846.

At page 40 of the volume in which their proceedings are published we find the following observation:—

"The voice of mankind has called for relief, for in many instances quarantine regulations have been not only oppressive to commerce, but pestilential sources of disease and death."

Yellow Fever seems to have occupied the special attention of the Committee, and several respectable physicians of experience were called upon to furnish testimony as to the contagious or non-contagious property of that disease.

At page 171 of the proceedings, Dr. Hort, of New Orleans, states:—

"The facts, as presented by Dr. Beck, of New Orleans, in relation to the fever of 1822 in your city (New York), are of themselves sufficient to settle the question of contagion for ever; for the Yellow Fever cannot be contagious at one time and non-contagious at another; in short, the evidence that Yellow Fever is not a contagious disease, and therefore cannot be communicated by personal contact, is overwhelming. . . . I do not know a single physician in

* From the same authority it appears that Dr. Almeida was a general merchant, who sold in his store a few simple drugs, and gave his advice gratis. It may hence be inferred that his opinions, even had they been fixed, could have been of no great value.

this city (New Orleans) who believes it to be contagious; and the public, with very few exceptions, are of the same opinion; and it would be difficult to find a physician of a different opinion at Havana, Vera Cruz, in the West India Islands, or, in short, in any part of the world where Yellow Fever prevails. We know of no malignant fever peculiar to tropical climates that is contagious; they all result from impurity of the atmosphere, occasioned by exhalations from the surface of the earth."

At page 197:—

"Since the first time I saw a case of Yellow Fever, in 1822, to the present time, I have not seen the least evidence to prove that Yellow Fever is contagious; but facts have been constantly accumulating to prove the reverse. In this city my experience has been chiefly among the Irish and German emigrants; I have generally found them very much crowded, and particularly the Irish. In several instances, where, perhaps, 20 or 30 persons occupy two or three small rooms, and all unacclimated, I have attended five or six with the Yellow Fever, while all the rest, although in constant contact with the sick, have escaped the disease. How could this happen under such circumstances so favourable to the propagation of the disease if the fever were contagious?"

"There may be two or three physicians in this city who believe that Yellow Fever is contagious; but in opposition to this opinion the faculty may be said to be almost unanimous. Sporadic cases of Yellow Fever are utterly repugnant to the doctrine of contagion. Until within three years past, during which time the fever has been rather sporadic than epidemic, the Yellow Fever prevailed with regularity as an epidemic every other year, but there were always sporadic cases."

In the course of the investigation many observations for and against contagion were brought forward, but the necessary limitation to my Report prohibits my giving any further extracts from the proceedings than the following evidence of Dr. Reese, of New York;—

"The Yellow Fever never was, nor ever will be, imported into this port, by sea or land, in the persons of the sick, for the reason that it is not a contagious fever, as small-pox is—that it is not communicable from the bodies of the sick to the healthy. It can only be imported in the holds of vessels, nor is there any danger of cargoes or persons.

"The Yellow Fever is not communicated by personal contact, but by an infected atmosphere.

"No number of the sick can so infect a healthy atmosphere as to produce Yellow Fever, though other diseases may be produced by foul air; but if the air of a neighbourhood be infected by the cause of Yellow Fever, which is a specific poison, all persons breathing it any length of time are liable to be attacked, even those who only visit the infected district for a few hours. But in all cases the line may be readily drawn, circumscribing the infected district, and beyond which perfect impunity may be enjoyed, even though in contact with the sick and dying, who have been removed from the epidemic atmosphere. . . . And yet I have at another time lived and slept in the midst of the sick and dying of the Yellow Fever, who had been removed into a healthy situation, without witnessing a single instance of infection among physicians or nurses; and but for the antiquated superstition of the times, there would be as much reason for prohibiting a passenger whose leg was broken from being brought into the city as one sick with Yellow Fever. Indeed, there is quite as much danger of catching a broken leg in the one case as the Yellow Fever in the other."

LETTER (T.)

A List of 69 Men of the 43rd Regiment who were employed (in parties of from 3 to 6 daily) from the 2nd to 23rd October, 1828, in attendance on the sick, by night and day, at the Naval Hospital (Plan Letter D), for the period specified opposite their respective names.

NAMES.	Date of Employment at Hospital.	No. of Hours Employed.	Posts, other Duties, Employments, &c., taken after their Hospital duty.	Date and Places of those subsequently attacked.	No. of Days which occurred between the date of the Employment of some of these Men and their being attacked with Fever.	Date of Decease of some of those attacked.
David Fenning . . .	2 Oct.	24	2 posts in town . . .	. . .	. . .	. . .
James Brown . . .	3 "	24	3 posts in camp . . .	. . .	. . .	. . .
William Bosworth . . .	3 "	18	" "	. . .	. . .	. . .
Arch. McHewey . . .	4 "	24	1 post in camp and town . . .	Camp guard, 7 Nov. . .	33	. . .
Thomas Cross . . .	4 "	24	Had resided for several days after in an infected locality.	Camp, 22 Oct. . .	17	27 Oct.
Francis Clamo . . .	4 "	24	2 posts in town . . .	. . .	. . .	. . .
George Cox . . .	5 "	24	1 post in camp and town . . .	. . .	. . .	. . .
Edward Dea . . .	5 "	24	2 posts in camp and town . . .	1 hour after coming off the town guard, 30 Oct. . .	24	. . .
Jon. Cooper . . .	5 "	24	3 posts in town . . .	. . .	. . .	. . .
John Mott . . .	6 "	24	2 posts in town . . .	In camp, 5 Nov., 3 days after last guard . . .	29	. . .
William Taylor . . .	6 "	24	2 posts in camp . . .	. . .	. . .	. . .
Samuel Johnston . . .	7 "	24	" "	. . .	. . .	. . .
James Sample . . .	7 "	24	" "	. . .	. . .	. . .
John Ryan . . .	7 "	24	" "	. . .	. . .	. . .
David Officer . . .	8 "	24	" "	. . .	. . .	. . .
George Gardner . . .	8 "	24	3 posts in camp . . .	. . .	. . .	. . .
Thomas Walker . . .	9 "	24	3 posts in town . . .	4 hours after coming off last guard, 24 Oct. . .	14	. . .
William Warram . . .	9 "	24	3 posts in camp . . .	. . .	. . .	. . .
John Ried . . .	9 "	24	2 posts in camp and 1 in town . . .	On the town guard, 15 Oct. . .	5	22 Oct.
George Loftus . . .	9 "	24	1 post in camp and 1 in town . . .	. . .	. . .	. . .
John Campbell . . .	10 "	24	Did not recollect . . .	. . .	. . .	. . .
Elias Balder . . .	10 "	24	2 guards in camp . . .	Day after last guard, 6 Nov. . .	26	. . .

A List of 69 Men of the 43rd Regiment who were employed (in parties of from 3 to 6 daily) from the 2nd to 23rd October, &c.—continued.

NAMES.	Date of Employment at Hospital.	No. of Hours Employed.	Posts, other Duties, Employments, &c., taken after their Hospital duty.	Date and Places of those subsequently attacked.	No. of Days which the date of the Employment of some of these Men and their being attacked with Fever.	Date of Decease of those attacked.
Jon. Cooper . . .	10 Oct.	24	3 guards in town . . .	. . .	..	..
William Gaining . . .	11 "	24	Did not recollect . . .	. . .	..	..
George Paul . . .	11 "	24	All guards in camp . . .	. . .	..	..
William Harbert . . .	11 "	24	2 guards in town . . .	. . .	..	..
William Haylock . . .	12 "	24	2 guards in camp and 1 in town . . .	. . .	..	..
Charles Mandefield . . .	12 "	24	" " " " " " " " . . .	On town guard, 21 Oct.	8	8 Nov.
William Mills . . .	12 "	24	Colonel's orderly in camp . . .	In camp, 29 Oct.	16	..
Thomas Sinnott . . .	12 "	24	3 guards in camp and 1 in town . . .	2 days after town guard, eve 1 Nov. . .	19	..
John Williams . . .	13 "	24	3 guards in camp . . .	. . .	..	..
William Carroll . . .	13 "	24	" " " " " " " " . . .	. . .	..	..
James McMahon . . .	13 "	24	" " " " " " " " . . .	. . .	..	..
Patrick Ryan . . .	13 "	24	2 guards in camp . . .	. . .	..	..
John Billett . . .	14 "	24	2 guards in town and 1 in camp . . .	. . .	..	..
Michael Byrne . . .	14 "	24	2 guards in camp . . .	. . .	..	..
William Taylor . . .	14 "	24	" " " " " " " " . . .	. . .	..	..
John Barber . . .	14 "	24	" " " " " " " " . . .	. . .	..	..
John Bride . . .	14 "	24	" " " " " " " " . . .	. . .	..	..
James Cole . . .	14 "	24	1 guard in town . . .	In camp, 26 Oct.	11	29 Oct.
William Demmick . . .	15 "	24	3 guards in camp . . .	In camp, 22 Oct.	7	28 Oct.
John Goodwin . . .	15 "	24	" " " " " " " " . . .	. . .	..	..
Samuel Hillsden . . .	15 "	24	2 guards in camp and 1 in town . . .	. . .	..	..
John Felgate . . .	15 "	24	Orderly in town . . .	In town, 9 Nov.	24	12 Nov.
John Fell . . .	15 "	24	2 guards in camp and 1 in town . . .	In camp 2 days after town guard, 28 Nov.	43	2 Dec.
William Brown . . .	15 "	24	2 guards in camp . . .	. . .	..	..
Richard Claney . . .	15 "	24	1 guard in camp and 1 in town . . .	On town guard, 7 Dec.	52	..
William McGowan . . .	16 "	24	" " " " " " " " . . .	. . .	..	..
James McCullum . . .	16 "	24	" " " " " " " " . . .	. . .	..	..

A List of 69 Men of the 43rd Regiment who were employed (in parties of from 3 to 6 daily) from the 2nd to 23rd October, &c.—continued.

NAMES.	Date of Employment at Hospital.	No. of Hours Employed.	Posts, other Duties, Employments, &c., taken after their Hospital duty.	Date and Places of those subsequently attacked.	No. of Days which occurred between the date of the Employment of some of these Men and their being attacked with Fever.	Date of Decease of some of those attacked.
Alex. McLaughlin . . .	16 Oct.	24	1 guard in camp . . . . .	. . . . .	. . . . .	. . . . .
Michael Kelly	16 "	24	2 guards in camp and 1 in town . . . . .	. . . . .	. . . . .	. . . . .
Thomas Shaw	16 "	24	2 guards in camp . . . . .	. . . . .	. . . . .	. . . . .
Edward Sapstead	17 "	23	On fatigue in camp	In camp, 29 Oct.	11 . . . . .	. . . . .
George Sloane	17 "	24	2 guards in camp . . . . .	. . . . .	. . . . .	. . . . .
Thomas White	17 "	24	1 guard in camp and 1 in town	Civil camp guard, Dec. 11 . . . . .	. . . . .	. . . . .
Bethel Knight	17 "	24	2 guards in town and 1 in camp	At Naval Hospital, when an officer's servant, 4 days, 21 Oct.	54 . . . . .	. . . . .
Thomas Rhoades	17 "	24	3 guards in camp	On town guard, 23 Oct.	3 . . . . .	. . . . .
John O'Brien	19 "	24	1 guard in town	3 days after town guard, 9 Nov.	20 . . . . .	. . . . .
William Horton	19 "	24	1 guard in camp and 1 in town . . . . .	. . . . .	. . . . .	. . . . .
Maurice Fitzgerald	19 "	24	2 guards in camp . . . . .	. . . . .	. . . . .	. . . . .
William Fox	19 "	24	"	At camp, 9 Dec.	50 . . . . .	. . . . .
Thomas Beale	21 & 22	48	1 guard in camp and 2 in town . . . . .	. . . . .	. . . . .	. . . . .
Joseph Venables	21 "	24	1 guard in camp and 1 in town	2 days after town guard, 27 Oct.	5 . . . . .	. . . . .
John Tale	21 "	24	2 guards in camp . . . . .	. . . . .	. . . . .	. . . . .
William Beers	22 "	24	" . . . . .	. . . . .	. . . . .	. . . . .
Michael Brady	22 "	24	1 guard in camp and 1 in town . . . . .	. . . . .	. . . . .	. . . . .
Thomas Newman	22 "	24	2 guards in camp . . . . .	. . . . .	. . . . .	. . . . .
Edward Green	23 "	24	1 guard in camp and 1 in town . . . . .	. . . . .	. . . . .	. . . . .
Thomas McCasey	23 "	24	" . . . . .	. . . . .	. . . . .	. . . . .

(Copy.)

I certify that the above-named men were employed as Orderlies in the Hospital of the 43rd Regiment Light Infantry for the periods specified opposite their names.

(Signed)

JONAH HARRIS, Lieutenant and Adjutant,
43rd Regiment Light Infantry.

List of Women who Washed the Hospital Dresses, Linen, &c., during the Gibraltar Epidemic of 1828, also for Officers who suffered from the Disease.

Regiment.	Names.	Age.	When began to Wash.	For whom Washed.	OBSERVATIONS.
Royal Artillery.	Elizabeth Wilson	36	14 Oct.	An officer	Not attacked.
	Jane M'Culloch	40	Cannot be exactly ascertained.	"	"
	Elizabeth Love	34	30 Oct.	"	"
	Servant, name unknown.	..		A lady who died	"
12th Regiment.	Eliza Slater	28	8 Nov.	An officer	"
	Bridget Foster	24	14 Oct.	"	"
	Ann Pager*	26	22 Oct.	4 officers	"
23rd Regiment.	Margaret Roberts*	29	1 Sept.	2 officers and regimental hospital.	"
	Judith Bates*	30	10 Oct.	An officer	Not attacked. The husband of this woman died of the disease.
42nd Regiment.	Ann M'Kenzie	29	7 Sept.	Regimental hospital	Attacked 5th Oct., 28 days after commencing to wash. The subjects who suffered, living in the hospital district, were generally seized about the same time.
	Mary Connell	28	24 Oct.	Regimental hospital and 2 officers.	Not attacked.
	Jane Patterson	29	7 Sept.	12th and 42nd hospitals.	"
	Isabella Johnston	32	3 Oct.	2 officers	Not attacked; her husband died of the disease.
	Mary Deans	34	31 Oct.	An officer	Not attacked.
	Honoral M'Intosh	25	9 Oct.	"	Attacked 4th Nov., 26 days† after commenced washing.

* A report existed that the two first of these women had attacks, but, on investigation, this proved unfounded; they never ceased from their usual work in consequence of sickness.

† Viz., a month after the disease appeared in the same locality among those who had not washed for the sick; her husband was attacked previously.

List of Women who Washed the Hospital Dresses, Linen, &c.—continued.

Regiment.	Names.	Age.	When began to Wash.	For whom Washed.	OBSERVATIONS.
43rd Regiment.	Mary Finch . . .	30	12 Sept..	Regimental hospital . .	Attacked 2nd Oct., 20 days after commenced washing, and not till others in the neighbourhood were attacked. Not attacked. ,, ,, ,, ,, Not attacked. The husband of this woman was attacked, all communication between them having been cut off at the time. Attacked 8th Oct., 24 days after commencing, at the same time with others in her neighbourhood.
	Ann Neesom . . .	26	7 Oct. . .	2 regimental hospitals and an officer.	
	Nancy O'Niel . . .	43	12 Sept..	2 officers	
	Cecilia Pardoe . . .	27	, ,	, ,	
	Ann Brown	27	, ,	An officer	
	Catherine Pegler . . .	24	5 Oct. . .	, ,	
Nancy Peters	26	1 Nov. . .	Regimental hospital . .		
	Sarah Kelly	36	14 Sept..	2 officers of the 94th Regiment who died.	
73rd Regiment.	Mrs. Coine . . . . .	. .	Unascertained.	A lady	Not attacked.
	Mrs. Harris . . . . .	. .	16 Nov. . .	An officer who died . . .	, ,
	Mrs. Ried . . . . .	. .	6 Oct. . .	2 officers and 73rd Artillery.	, ,
	Mrs. Watson . . . . .	. .	18 Oct. . .	An officer	These women had slight illness in three or four weeks after beginning to wash, at a time when few of their class and neighbourhood escaped.
Mrs. Jones . . . . .	. .	Unascertained.	, ,	Not attacked.	
94th Regiment.	Elizabeth McBride . . .	. .	18 Sept. . .	4 officers	, ,
	Nancy Skelly	50	1 Sept. . .	73rd and 94th regimental hospitals.	, ,
Civilians.	Maria Bernardo . . . . .	. .	20 Sept. . .	Civil hospital	Slight illness 24 and 26 days after commencing, and when few in their district escaped.
	Estrudis Pasheca . . . .	. .	15 Oct. . .	, ,	

Many as the proofs have been in the foregoing Report of the unfairness of the endeavours to make it appear that the Yellow Fever was of a contagious character, one I observe, has been omitted, but which, from its great importance, is calculated to set the question for ever at rest:—however disagreeable to me to record, be it known to the public, then, that in a “Supplementary Note” to his official Report by Mr. Judge Howell (p. 273 of the second Report of the London General Board of Health to her Majesty on Quarantine) where he comments on the evidence of certain witnesses examined before a Board, of which he, Mr. Howell, was a member, at Gibraltar,—the following passage occurs:—

“On a re-perusal of the foregoing Report, I see no reason to doubt the soundness of the conclusions which a very careful and minute analysis of the evidence forced upon my mind; and my conviction remains unshaken, that the testimony of the child Caffiero, and of the other witnesses who were associated with him in the bungling endeavour to prove such a case as would establish the doctrine that Yellow Fever is contagious, and that the Gibraltar epidemic was an imported and not an indigenous disease, was not only false but suborned.”

Sed jam, jam satis est. We have here I think enough to satisfy the most fastidious.

And now those having exaggerated *notions* regarding the efficacy of Quarantine measures in regard to Yellow Fever, may sup with what appetite they may.

J.G.

